Chilton's

THIRD QUARTER FORECAST: THE ECONOMY GAINS STEAM

JULY 4, 1983

IRON AGE

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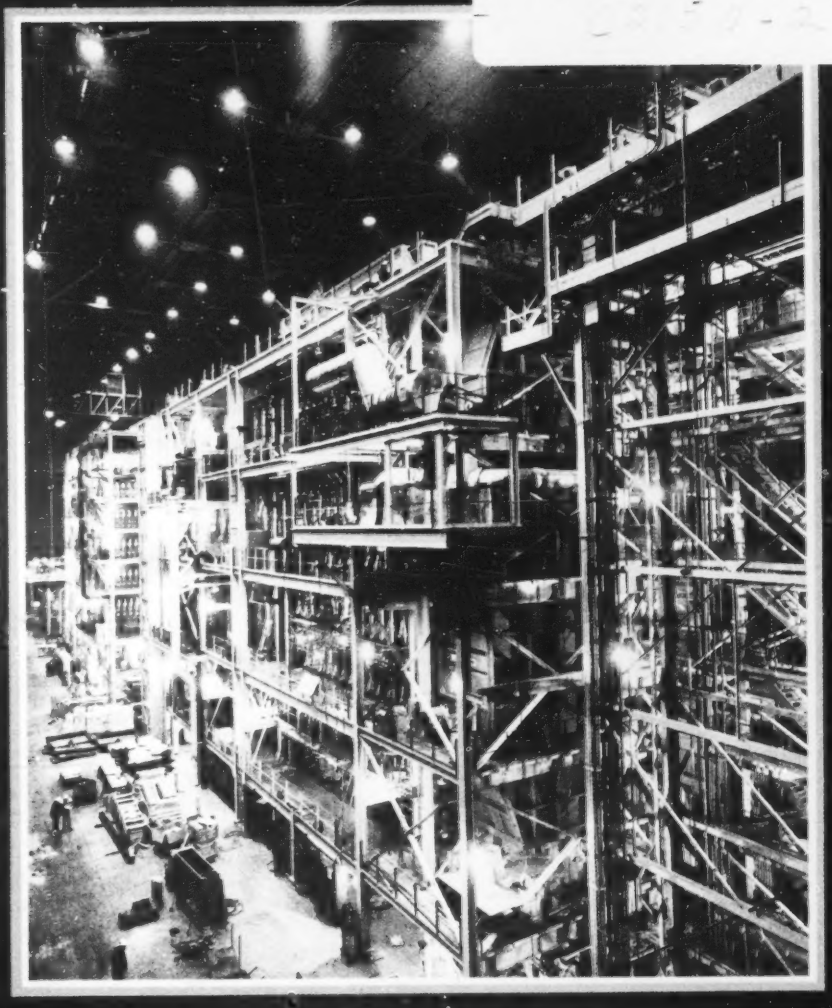

CONTINUOUS ANNEALING

Solving Old Problems With New Technology

VOL. 226, NO. 19

IRON AGE

JULY 4, 1983

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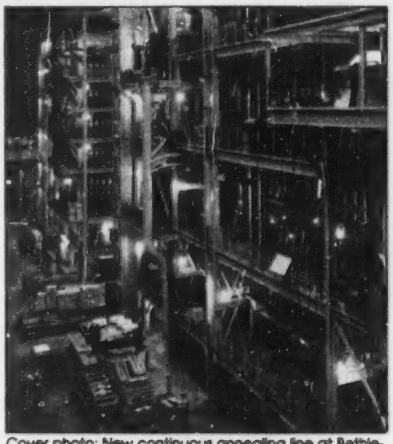

Cover photo: New continuous annealing line at Bethlehem Steel Corp.'s Burns Harbor plant.

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Quality in America: Part I in a series.

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THE ECONOMY GAINS STEAM

Forecasters now look for a strong recovery this year. The big push: Consumer spending. The big drag: Plant investment.

In recent weeks, most economists have lifted their sights on the short-term outlook for the U.S. economy.

Right now, forecasts for real GNP growth run in the 6 pct to 9 pct range for the second quarter.

This is a thumping hard gallop following six quarters where growth averaged less than 1 pct a period. It will be known in a few weeks whether or not the economy actually hit that pace in the June period. That is when the U.S. Commerce Department will release its preliminary GNP data for the quarter.

Most economists, who are putting out the bright and shining numbers on the second quarter, see a letting up on the pace in the third period and then a return to a fast track in the closing quarter.

These upbeat forecasts reflect a new wave of bullish sentiment on the strength of the fledgling recovery.

"Every published forecasting model now no longer has any choice but to revise its forecast estimates strongly upward," says Albert T. Sommers, chief economist of The Conference Board. "Coming from so far down, the energy of this recovery is awesome."

Executives in metalworking product lines still deep in the doldrums have reason to shake their heads in doubt when they hear all this happy shouting.

But Mr. Sommers, for one, sees their day coming. He says the U.S. economic recovery is "still accelerating" and is likely to spread soon even to the country's deeply depressed capital goods industries.

Just what is it the seers now see when they lift the lid on the economy and peer in?

They see, first of all, a come-back-to-life consumer. In many cases, he is getting his old job back; his real earnings are rising as inflation gives more ground; he is freely and confidently taking on new debt.

And, most importantly, the consumer is putting his money on the line for more goods and services.

The numbers are there. In April and May, payrolls in U.S. industry increased by almost 700,000 workers. The GNP fixed-weighted price index in the first quarter ran at an annual rate of 3.2 pct—about half of what it ran for all of last year. Too, April marked the second straight month that consumer installment debt rose by more than $2 billion.

And to top it off, in May, retail sales rose a strong 2.1 pct. That month saw the biggest monthly jump in sales in nearly six years at the nation's department stores and other general merchandise outlets. Big-tag goods like appliances and some lines of autos (the big ones, especially) are selling briskly.

Auto sales at mid-June were running at a seasonally adjusted annual rate of 7.4 million units. This was up from a 6.7 million unit rate in May.

Another sign of strong recovery was seen in the latest data on housing starts. In May, they rose 19.1 pct to a seasonally adjusted annual rate of 1.79 million units—the highest since September of 1979.

And, closer in to the factory and to metalworking, industrial output through May was on the rise for the sixth straight month. With output on the rise, manufacturing plants have become busier. The latest data from the Federal Reserve Board shows U.S. factories operating at 72 pct of capacity—the highest level since February 1982.

Notably, much of the increased factory output very recently has been in long-lagging lines.

In looking at all these hard signs of a rolling consumer recovery, and to the upcoming 10 pct Federal income tax cut in July, U.S. Commerce Secretary Malcolm Baldridge notes that they point to "further strong gains in consumer spending."

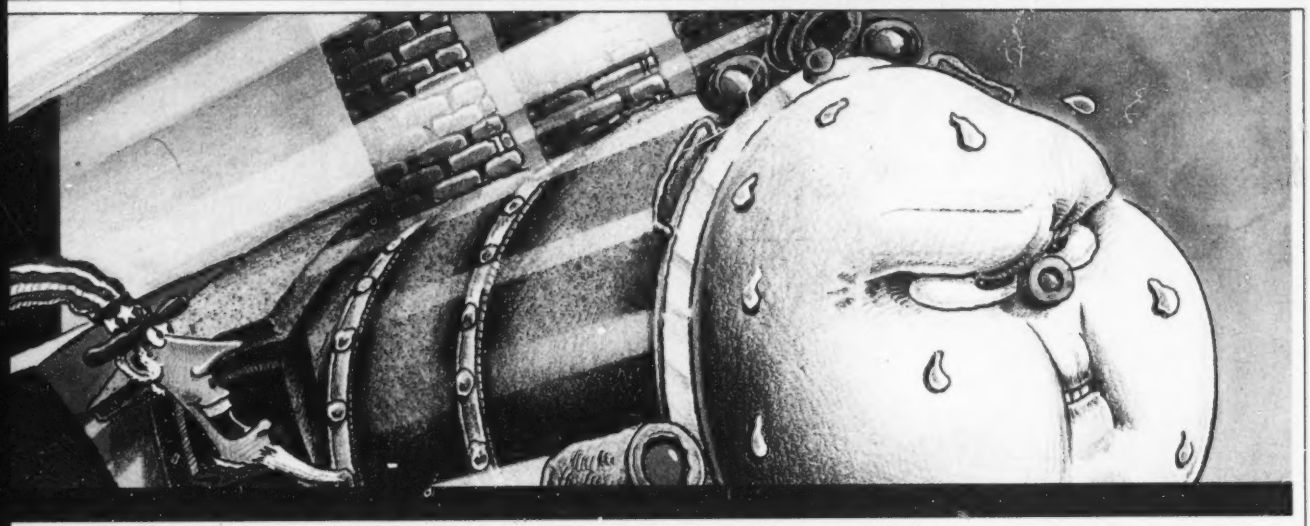
The rising tide of consumer end-product buying has just started to give a strong lift to the whole economy.

Durable goods manufacturers, making everything from those end products to the equipment that produces them, are showing early signs of busy days ahead. Their incoming orders in April were up 4 pct over March, and up more than 7 pct from February.

Also, an April rise in inventories held by durable goods producers apparently marked an end to many, many months of inventory runoff. That is a sure signal of a rising trend in new orders in coming months. No longer can many durable goods factories turn to their stocks on hand to fill incoming new orders. They must start ordering themselves.

As the chart here on durable goods new orders shows, a 'bottom' was likely reached in the closing quarter of last year—a monthly average of $72.3 billion. In the opening period this year, orders rose to a $79.9 billion monthly average. And, based on two months of actual data, *Iron Age* estimates that orders in the June period hit $83.9 billion. By year end, a monthly rate of $91.3 billion is foreseen, up a very strong 26 pct over the same period a year earlier.

QUARTERLY FORECAST



As is always the case in the early stage of a business recovery, not all industries have yet been given a lift by the current upswing. For many machine tool builders, for example, the recovery bandwagon is still perceived as nothing more than the distant sound of music.

That brings up a source of real concern in the economy. Spending on new plant and equipment might well lag the recovery far more than usual this time around. Two important recent projections highlight this possible problem.

In April and early May, the Commerce Dept. made its latest quarterly survey of business executives on their plant spending intentions for this year. The news was less than cheery.

The survey found that U.S. industry, after allowing for inflation, would spend 3.1 pct less on capital spending this year than in 1982. (The chart here shows projections of this survey covering manufacturing in 1983).

And 1982 was a bummer; plant spending was down 5.5 pct from the previous year. And in 1980, plant spending was up only an anemic 0.2 pct.

At about the same time last month that Commerce officials were announcing the dark news on plant investment plans, the Conference Board reported the results of its latest survey on capital appropriations by the nation's 1000 largest manufacturers. It was more bad news.

Manufacturing industry executives, excluding those in petroleum, told the board that they set aside some 8.1 pct less for appropriations in the first quarter compared to the previous period.

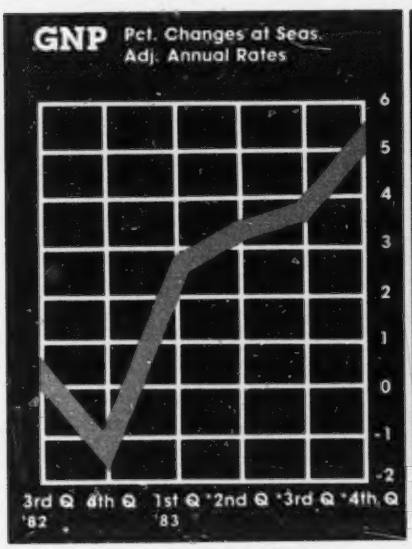
"Expectations for 1983 were again revised downward," said Lora S. Collins, director of the board's Business Conditions Analysis. "The current outlook is for capital appropriations to rise only 6 pct this year. Excluding petroleum, appropriations are expected to be up only 1 pct."

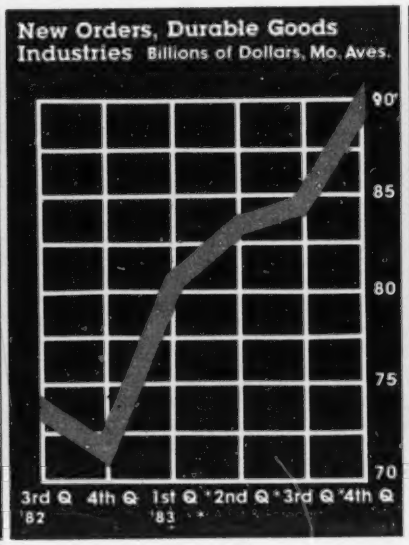
There are concerns about the staying power of the current recovery. These center, for one, on the possibility of strained credit markets and soaring interest rates as government budget deficits and rising business volume push both the government and the private sector into big borrowing binges.

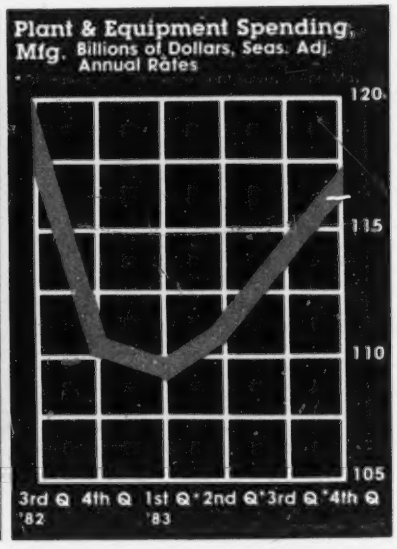
The other concern is the widely-anticipated plant investment drag. After all, there has never been a sustained recovery without strong capital investment.

But these are concerns that really have meaning for 1984 and beyond. Right now, however, it looks like 1983 will be a year of steady improvement in business as the year rolls on.

John Baxter







QUARTERLY FORECAST

Steel

For steel mills, it is not a question of when the recovery will end, but when it will start.

Steel shipments have moved up from the depths of 1982, but demand is still at a depressed level. The market is too weak for the mills to collect published prices or make money. There is no pressure on users to make advance commitments or to buy more than minimum quantities.

There is no sign, either, that things will get much better in a hurry. Mill officials think the trend is upward. A typical forecast calls for shipments to rise from 17 million tons in the second quarter to 18 million tons in the third quarter.

Going into July, however, the mills weren't even sure how much tonnage would be shipped in that month. Last minute orders will determine the exact volume. It's entirely possible shipments will be down, not up, in the third quarter.

This may seem surprising because the steel market is technically in its seventh month of recovery. The first quarter was better than the fourth quarter in 1982. The second quarter was better than the first.

At this stage of past recoveries, demand would often start to feed on itself. Improved orders would tighten supply a little. Users would then want more inventory protection and this would bring a further tightening of supply.

It looked as though this snowballing action was starting when orders surged in January and February. Then on March 1, a labor agreement eliminated the threat of a steel strike. At about the same time, it became clear the mills weren't going to be able to put through significant price hikes.

With no need to hedge against price hikes or a strike, users abruptly ended their order spree. Steel shipments rose to nearly 6 million tons in March, then fell to under 5.4 million tons in April. Mill officials suspect the April drop reflected production problems. It's believed shipments have been moving essentially sideways since March.

The trouble with the recovery is that the starting point was down near zero. That is true of the steel market and probably the whole industrial economy. Business is better, but it's still lousy.

The economic pattern is reflected in lopsided steel activity. The partial recovery of the auto industry has lifted operations of sheet mills to 70 or 75 pct of capacity.

The continued lag in capital spending has left plate and structural mills operating around 40 pct of capacity. Producers of oil country seamless goods are down to about 20 pct of capacity.

The general state of the market is indicated by the fact that users continued to liquidate steel inventory in the second quarter. The reductions were concentrated in the oil country market. But in all markets, people were content to operate with skimpy inventories.

Making for added confusion about the immediate outlook is the steel buying program of General Motors Corp. As it did last year, General Motors is having steel companies bid for its business over the next model year.

The bidding procedure was drawn-out and shrouded in secrecy. Mills were called on to bid for particular auto parts. This meant qualifying steel for applications as well as submitting prices. There were repeated delays in making awards and by mid-June, the program still hadn't been sorted out.

While carbon sheet producers were waiting for General Motors to decide their fates, specialty mills were waiting for President Ronald Reagan to decide theirs. The President was scheduled to act by July 5 on the specialty industry's request for import quotas.

The International Trade Commission has ruled that the domestic specialty producers are being injured by imports. On May 6, the commission recommended that quotas be imposed for three years.

Meanwhile, the market outlook for specialty grades is mixed. There is brisk demand for stainless flat rolled, which goes into autos and other consumer products. Despite good volume, there are chaotic prices in the stainless sheet market.

Demand for stainless bars and plate continues to lag. Also slow is the tool steel business. Imports captured more than 56 pct of the domestic tool steel market in 1982.

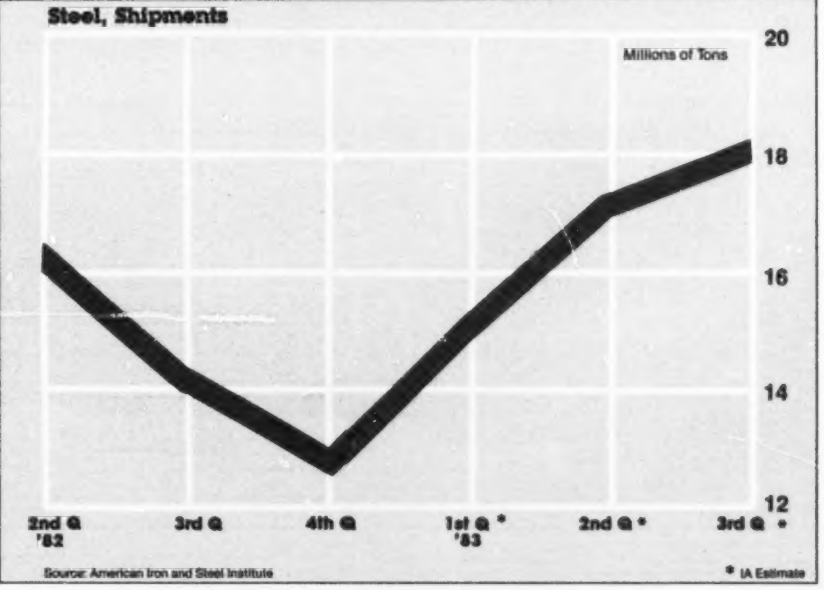
Still pending in June was the proposed agreement calling for steel slabs to be shipped from the Ravenscraig plant of British Steel Corp. to the Fairless Works of U. S. Steel Corp.

The Steelworkers say the use of foreign steel by Fairless would be the opening wedge that would force others to do the same thing. U. S. Steel argues that it can't afford to modernize the entire Fairless Works.

The whole steel industry is now past the 18-month mark of a deep recession. Business has got to improve soon or there will be plant and company shutdowns.

For nearly a year and a half, steel mills have been shipping more steel than they have been producing. In 1982, raw steel output of 72.9 million tons compared with finishing steel shipments of 61.6 million tons. The apparent yield of 83 pct actually reflected the liquidation of 5.5 million tons of mill inventory.

Despite this big slash, producers reduced their inventories by another 400,000 tons in the first three months of 1983.



QUARTERLY FORECAST

Nonferrous

It wasn't hard for the nonferrous metals producers to score gains in shipments during the first half of 1983, considering how bad things were on the shipping docks during the first six months of 1982. The elusive factor remains profitability and to recapture that, the producers will need further improvement in demand and higher prices.

Prices for aluminum, nickel and copper improved to varying degrees during the first half—in most cases a matter of crawling up out of the subcellar into the basement—but zinc prices were static and lead actually lost some ground.

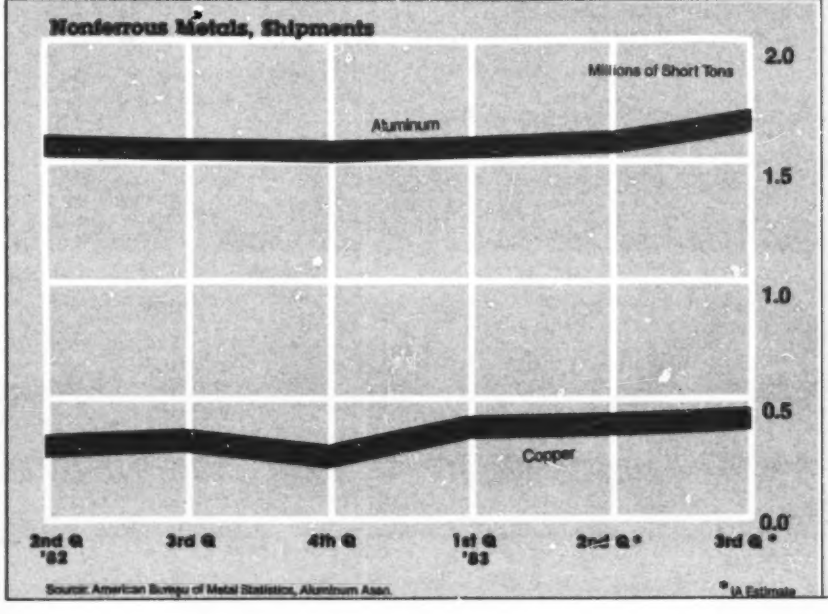
The economic improvement continues to grope its way forward at a much slower pace than the stock market, and the chewup rate for base metals has improved. Consumers haven't been prompted to rebuild meager working inventories yet, however, despite lower interest rates (compared with last year) and improving price trends.

On the consumption front, domestic passenger cars were up about 8.2 pct going into mid-June, but foreign cars continued to claim a 27 pct share of the total U.S. market. Residential construction was stronger earlier in the year but appeared to be pausing for breath while the forecasters pondered the possibility of an upturn in mortgage rates. Capital spending remained in the doldrums.

Some early wage pact settlements took the edge off a modest price recovery on the copper markets as the year neared the half-way mark. Hedge market inventories climbed almost relentlessly during the first half, but U.S. refiners managed to pare their own stocks somewhat.

Economic, political and labor difficulties were seen posing some threats to copper production in South America and Africa but, with visible supplies ample and industrial requirements here and abroad still far from robust, the speculative fraternity maintained its cautious posture and prices were held in check. The other jaw of the clamp about the head of domestic producers, foreign producer output and pricing geared to foreign exchange and sociopolitical needs, also maintained its pressure. Meanwhile, traders and producers were waiting to see what the Chinese decide to do with the large stock of London Metal Exchange (L.M.E.) copper they were holding paper title to.

Some of the sharp runup in free market aluminum prices during the opening months of 1983 also reflected Chinese buying on the London exchange and elsewhere. A lot of the impetus, however, came from the sharp cuts in production—mainly in the U.S. and Japan—that carried into the early part of the second quarter. U.S. producers have been reactivating idled capacity at a quickening pace in more recent weeks, however, and the third quarter will show how accurately they have gauged the market. L.M.E. prices toward midyear still hadn't caught up with recently established transaction prices for primary ingot.



The producers tied the output cuts mainly to a need to adjust their own inventory levels, but also cited a better incoming order level. And, with some industry leaders predicting that a sizable chunk of idled capacity may never come onstream again, an argument can be made for higher production to head off annoying stringencies if the economy picks up more steam.

Incoming orders for ingot were up sharply in the first third of the year, but showed some signs of flagging in April. Orders for can stock were up slightly from the same 1982 period, but orders for other sheet items and plate were up smartly to rates topping prerecession levels. Export business remained poor.

The spot price for nickel by midyear was up more than 50 pct from its November 1982 low, but as one major producer noted, "No producers make money at this ($2.24 a lb) price." Nickel suppliers are forecasting a 13 pct gain in free world nickel consumption this year to about 1.1 billion lbs but this will just put the nickel industry back where it was in 1975.

The nickel companies have managed to pare their inventories considerably this year, thanks to deep production cuts and modest improvement in consumption by manufacturers of consumer durables. The missing ingredient, capital goods expansion, hasn't shown its colors yet, however. Meanwhile, the Western producers are keeping a weather eye on Russian nickel exports, which claimed about 9 pct of the free world market last year after a jump of about 70 pct.

Domestic zinc producer shipments were up modestly in the first half of this year, but the main prop to static zinc prices has been a tight rein on production that has pulled down producers' inventories. Zinc industry sources expect price improvement in the second half as the chewup rate improves with better car production and as producer stocks here and abroad continue to tighten.

The continuing decline in lead consumption for cable sheathing, sheet and pipe products, and tetraethyl lead leaves the domestic lead producers more and more dependent on the automotive replacement battery market, the service life of which has been increasing while the lead content level has been decreasing. Lead refiners' stocks have risen notably again this year because production has been rising faster than shipments and output curbs appear to be in the offing.

QUARTERLY FORECAST

Auto

Sales of U.S. cars in the second quarter reached their highest level since the third quarter of 1981. The automakers expect the selling rate to rise further in the third and fourth quarter. If so, sales in 1982 will exceed those in 1981 and 1982 and equal those in 1980: 6.6 million domestic and 2.4 imported passenger-car sales.

"We continue to see an upturn and improvement in sales," says an analyst for one automaker. "However, this is not a recovery. A recovery would be total sales of 10.5 million, not 9 million. We might see that rate in the middle of 1984 or in 1985."

Other auto executives are more cautious. "We'll sell 9 million cars if we're lucky," says one Big 3 chairman. "But it might be just 8.5 million."

Automakers likely will produce 1.6 million cars in the third quarter of 1983, up sharply from the 1.2 million built in that period last year. Production in the second quarter of 1983 was 1.8 million, up from 1.6 million in the second quarter of 1982. Dealers now have fewer than 50 days of inventory; 60 days is average.

Large cars continue to account for 13-14 pct of total industry sales, up from the low of 10 to 11 pct two years ago. As in the second quarter, automakers will continue to offer incentives to buyers of small cars. Automakers need to sell small cars to meet goverment requirements for a corporate average fuel economy (CAFE).

"Our full-size and intermediate cars are selling at very close to production capacity," says one Big 3 vice president in charge of sales and marketing. Chrysler also is running most of its plants at full capacity.

"The recovery is underway," says another vice president, "and consumer confidence about buying a new car is at its highest point in over 30 years."

Cars in the U.S. now are the oldest they've been since the mid-1950s. The average age of all cars is more than seven years, compared with six years in 1975 and 5.5 in 1970.

While offering incentives for small cars, the Big 3 automakers have raised the prices of their large cars.

All the Big 3 automakers likely will make big profits in 1983 and bigger profits in 1984 and 1985, say Wall Street analysts. In the first quarter of 1983, Ford's North American Automotive Operations earned their first operating profit in four years; and Chrysler recorded the highest single quarterly earnings in its history.

Imports in 1983 will continue to capture 27 or 28 pct of the U.S. market. The Japanese automakers will limit imports to 1.7 million between April 1983 and April 1984. It's uncertain whether they'll continue that restraint next year, whether the U.S. Congress will pass local content laws, and how an upturn in the U.S. auto market will affect these issues.

Machine Tools

The slow increase in machine tool orders has some companies convinced that 1984 will be a very good year, but not necessarily for all American builders.

"Expendables have shown some good increases and our inquiry level for stand-alone machines is up," says one builder. "There are some particularly hopeful signs in automotive as well," he adds.

Major systems makers are the most optimistic, for the long-term at least. "If Detroit opts for the flexible machining route, we'll be in a boom situation by the end of the year," says a major manufacturer of such systems.

However, there's a large cloud over the whole machine tool picture in the U.S., sources tell *Iron Age*, and it has nothing to do with interest rates, labor rates or inflation rates. "The Japanese overhang is going to keep a lot of domestic builders very unbusy during this recovery," says an executive with one large U.S. company.

The "Japanese overhang" he's referring to is a stockpile in this country of several thousand new machines that will be discounted heavily during the recovery. "Until they're sold, there will be no recovery for a lot of us," says the executive.

Those companies that compete in the various NC lines that the stockpile represents will not be able to "match the money" says one source. "The discounts are huge."

Meanwhile, the industry remains split as it's never been over "232" and the whole issue of foreign builders.

Some U.S. builders expect the "Asian Invasion" to continue relentlessly until all but the biggest American companies remain. "That's the purpose of the discounted stockpile," says one expert.

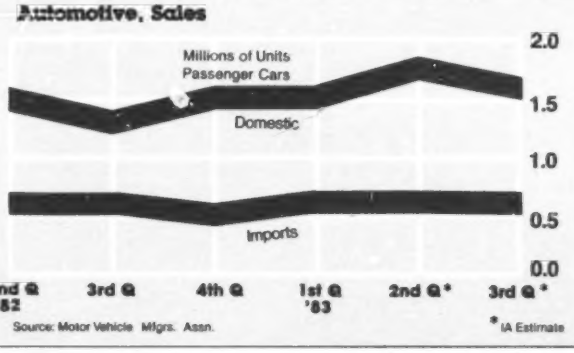
Some believe "232" will give the domestic builders an absolutely essential reprieve.

But still others feel the approach is inappropriate and counter-productive. Not a few domestic builders are against the petition.

Simply put, the American machine tool industry is not of one mind on imports. Various multinational arrangements keep some builders from being supportive of any restrictions on foreign participation in the U.S. market. Others are downright loud in their support for relief, from Japan in particular.

The question according to some leading industry managers is where will America's much needed retooling be built and by whom.

So as the recession seems to indeed be over and recovery on the way, U.S. machine tool builders face an uncertain future. The market is researching the latest technology and U.S. builders have it. Unfortunately, the market is also researching the latest prices and that is where some U.S. builders find their pessimism.



QUARTERLY FORECAST

Instruments & Controls

The sales of instruments and controls will pick up a sluggish 1-2 pct in the third quarter. This pickup follows growth during the second quarter of under 2 pct.

However slow the growth, at least business is on the upswing from a depressed third quarter of 1982. Business will continue to languish until capital spending picks up.

"I don't see that happening this year," said one industry spokesman. "Companies are going to need more confidence in the economy and get a little more money under their belt before they are going to open their wallets for more capital equipment."

Before new equipment is bought, firms must first get the old equipment running again. As old manufacturing lines come back on line, the replacement market for instruments and controls should increase steadily.

Also, before sales pick up, the overseas market must improve. U.S. producers of analytical instruments typically export 40 pct of their products, with the large majority of these going to Western Europe. Overseas sales remain depressed because of the continuing strength of the U.S. dollar in comparison to other currencies. Also, foreign countries are still fighting to overcome the worldwide recession, although there are signs of recovery overseas.

Real growth for the year should approach 4 pct, with small sales increases through the third and fourth quarter. As the general economy improves, sales of instruments and controls generally lag the recovery by six months.

As the U.S. emerges from the recession, it is finding itself in an increasingly competitive world market. To compete favorably, U.S. firms are going to be looking for productivity and quality improvements in their manufacturing operations. Instruments and controls will be an integral part of this reindustrialization effort; however, this will probably not begin in earnest until the first half of 1984.

The instrumentation industries include SIC 3811, engineering and scientific instruments; SIC 3822-24 and 3829, measuring and controlling instruments; SIC 3825, instruments for measuring electricity; and SIC 3832, optical and analytical instruments.

The measuring and controlling instruments sector is the largest and the most applicable to metalworking, and also the slowest to recover from a recession. Industry observers see little growth for the sector through 1983.

"Why would anyone want to buy instruments if the machinery this equipment is supposed to monitor is not running," says one spokesman. "First, get the equipment running again and then worry about the instruments."

This sector does have a few bright spots, however, the replacement market is holding steady and sales to housing-related industries such as home appliances are strengthening.

Computers

Several industry observers are sticking to their year-end predictions that the computer industry will grow 18 pct during 1983.

For the year, shipments could reach $43 billion dollars. Shipments for the third quarter should exceed $10.1 billion. For the remainder of the year, each quarter should be a slight improvement on the previous quarter.

"The third quarter is expected to show a slight increase over the second quarter, but how much depends on several factors," comments an industry spokesman. "Growth is linked to some extent to the general economy here and also to some of the key economies overseas."

For the first four months of 1983, computer exports rose 16 pct above the similar period in 1982. That is 4 pct below earlier predictions. This drop in expected revenues is significant because some 30 pct of U.S. computer sales are to foreign buyers.

"Exports are still not what they should be. There is still some weak demand overseas because of the lingering recession and also the dollar remains strong," says one industry analyst. "But if they come out of their recession, especially the one affecting Europe, we should see some export growth."

Significantly, in recent months, the U.S. has developed its first trade deficit with Japan. Much of that comes from peripherals that Japan makes for U.S. computers.

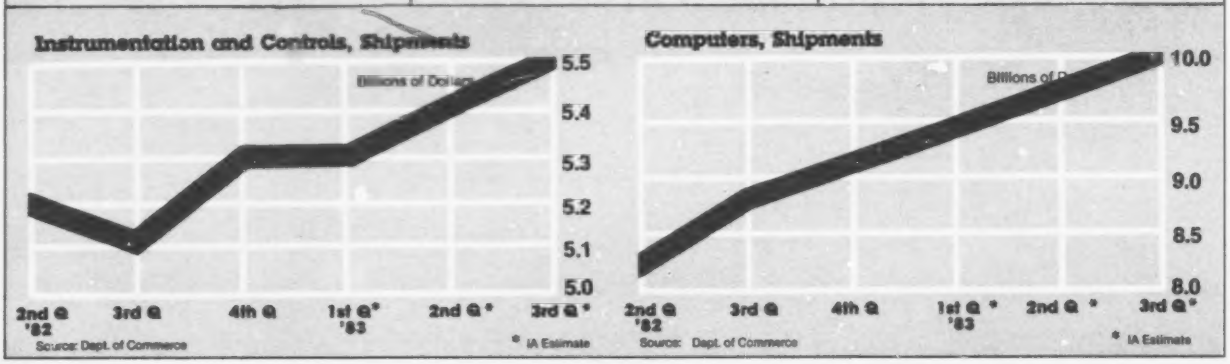
Going into the third quarter, some areas of computer sales are holding up particularly well. "The whole personal computer (microcomputer) area is very strong; that goes for complete systems as well as the pieces that go into them," reports an industry member.

Firms that sell the top of the line personal computers are doing well. In the lower-price sector of the market, the computers are selling, but because of heavy competition and price cutting, a number of firms are taking a bath.

The super-mini computers, "especially those with 32 bits, are still pretty healthy," says another industry analyst. "Display terminals, to the extent that you can ship them out the door, are selling."

Pieces of systems, such as large scale disc storage as well as smaller versions, are doing well. On the other hand, large system users are still storage-hungry for more sophisticated larger database applications. The low end of the industry is being fed by the rapid growth in small computers.

According to several sources, one thing to look forward to for the second half of 1983 will be an increased number of new product introductions.



QUARTERLY FORECAST

Metal Coatings

Shipments of product coating materials virtully reflect the trend in the general economy.

The latest complete figures are those for the first quarter of 1983 and these show only a slight gain (about 1 pct) in shipments over those of the fourth quarter of 1982.

But they're still well below the figures posted for the previous three quarters of 1982.

The producers of coatings for OEM products are still being hurt by the misfortunes of their best customers.

However, it's not all gloom because some bright spots are beginning to appear for the coatings industry. For example, the coil coating industry weathered 1982 and has written it off as "the year of recession"—the year it suffered along with its major customers industries.

Despite this, shipments of precoated steel and aluminum to the furniture and transportation industries remained on an even keel. It might be added that transportation is the largest single market for coated coil. Shipments of coil coated with a weldable zinc-rich primer actually increased, thanks to the automakers specifying this material for more parts and for more car models.

Coil-coated aluminum going to the container and packaging industry showed only a small decrease in shipments, while precoated steel posted a significant increase.

Some producers of industrial coating materials point out that a good part of the slippage in shipments and usage is directly attributable to the much higher efficiency of today's coating equipment and newer coating processes.

Once some of the coating industry's biggest consumers—autos, appliance, housing and the like—come back to life in a big way, coatings shipments will also bounce back.

Plastics

The plastics industry has had its ups and downs over the past couple years and is now on an upward trend. The final figures for the first quarter of 1983 show a gain of close to 8 pct in the sales and captive use of plastics resins over the figures of the first quarter of 1982. In fact, the first 1983 quarter fared better than any quarter of 1982.

This improvement over recent months and the pent-up demand for plastics bodes well for the industry for the remainder of the year.

As for reinforced plastics/composites, all markets are still expected to register gains over 1982. The marine market, which has been in the doldrums for quite some time, looks for a modest increase in shipments of about 2.2 pct.

Consumer products at the other end of the spectrum is expected to show a gain of 15-16 pct.

Industry experts are still sticking with an overall growth in shipments for 1983 of about 8.4 pct for reinforced plastics. Some industry marketing experts think the growth could reach 15 pct.

In the automotive field, with the use of lighter materials and the projection of annual production of 6.1 million cars, the plastics industry forecasts that shipments of composites will reach about 402 million lbs by the end of 1983.

The construction industry is looked upon for a 5.8 pct increase in 1983 which overall is less violatile than the housing segment alone. Reinforced plastics are also gaining ground in corrosion-resistant applications—pipes, pumps, tanks—and are expected to show an increase in shipments of more than 7 pct over 1982.

As things now appear, reinforced plastics, as well as plastics generally, will have a better year in 1983 than they had in 1982.

Fluid Power

Despite a faltering in incoming orders in April and May, fluid power manufacturers advanced in the second quarter.

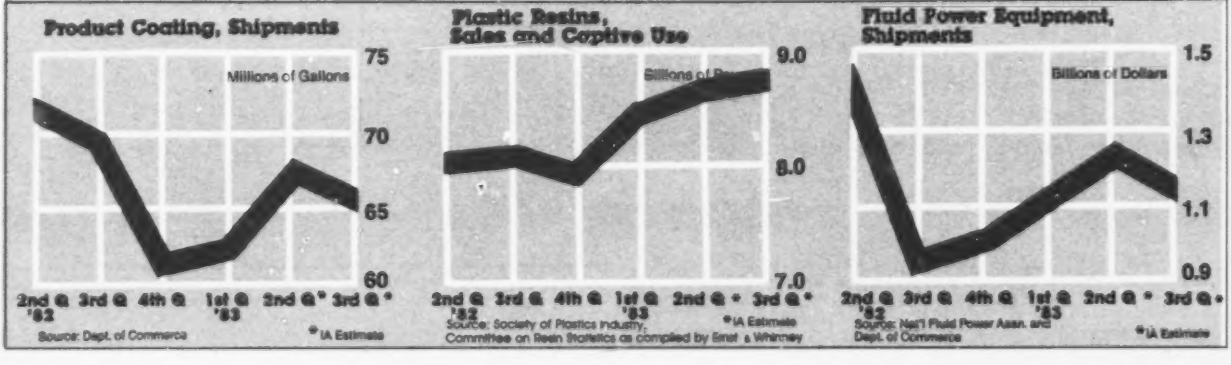
The industry was twice-cautious as 1983 began. It pegged its first half forecasts low and admitted it was doing so. And for some market areas, like heavy mobile equipment, that proved to be a good idea. Some suppliers to the construction and farm machinery makers report there was no change in their order volume through the first and second quarters of this year, a time when suppliers to some other capital goods markets and consumer durable markets, were beginning to feel a little better about the 1983 outlook.

Now, even these suppliers to the mobile equipment market, which had been the weakest sector during 1982 and early 1983, are beginning to talk about a recovery in the fourth quarter.

Said one supplier to mobile markets, "First quarter was flat with almost no gain over the low figure we hit in fourth calendar quarter of 1982. And second quarter was really no better. But in the July-September period, we should begin to show some improvement."

Export markets are still a mixed bag, however. In the past, foreign markets have tended to lag behind the U.S. in a world market recovery. This is changing. Now, the strong U.S. dollar is crimping U.S. sales of export finished goods. Europe and other overseas producers are beginning to ship more equipment into third world markets and are buying components for these finished machines from U.S. fluid power producers with plants abroad.

So this year, when most U.S. exports are down, a few fluid power companies are seeing a recovery in their foreign markets at a faster pace than domestic markets.



QUARTERLY FORECAST

Construction

A confused construction machinery market is further complicated by continuing soft prices. Even though builders of construction machines have trimmed back inventory in the past six months by production cuts, the backlog of used equipment at bargain counter prices is still holding down the dollar volume of sales for the entire industry.

Traditionally, second quarter sales of construction machinery are the highest of any calendar quarter of the year. In the third quarter, that machinery is already sold and out working on construction sites. So factory sales of new equipment drop, usually by about 12 pct. Fourth quarter, traditionally, sees another, even steeper drop below the third quarter level.

The industry also saw its biggest member, Caterpillar Tractor Co., end its long strike. The absence of Caterpillar for seven months (only four plants continued in operation) took out the biggest single source of construction machinery in the world. Now, 15 plants are available to begin building equipment, but Caterpillar isn't rushing to get up output, judging by suppliers reports.

Some equipment builders are even saying that dealer inventories of some lines of equipment may be too low, which is why they expect third quarter to look a little better than it usually does. Despite this and the fact that a few equipment builders have raised their manufacturing rates slightly on the strength of their third quarter forecast, *Iron Age* is still expecting some third quarter sales decline, though less than usual.

There were signs of this last year, when third quarter sales dropped only 2 pct and another 2 pct again in the fourth quarter. In fact, direct dealer sales may have fallen further in the first quarter of this year.

Farm

Moving into the third quarter, the farm equipment industry faces what is usually the lowest sales quarter of its marketing year.

Despite the bad things you used to hear about the Payment-In-Kind program, the prospect that farm net income could get a boost from PIK payments, or credits advanced against them, produced some surprising sales gains as early as first quarter of 1983.

Most analyses of farm machinery sales tend to focus on tractor sales. Tractors didn't do well in the first half. But combines, the second of the big ticket items, soared a completely unexpected 30 pct in retail sales in January. In February, they ran almost 39 pct over the year ago period, according to data on retail sales compiled by the Farm & Industrial Equipment Institute (FIEI). By April, the combined total for the year-to-date was still running 23 pct over the year ago period.

Even tractors didn't look as bad. They were running 27.8 pct below year-earlier sales in January. By April, the FIEI found, they had whittled that down at least to a 16.5 pct lower figure for the year-to-date, against the 1982 period. Some other equipment items—mower conditioners and balers, for example—were running strongly ahead of the year ago period.

This doesn't get the farm equipment industry out of the rough ground, but it looks like it's beginning to point in the right direction. The short line equipment builders, smaller companies that specialize in a few types of equipment, were already pointing out that change in feelings about PIK and the lessening of gloom over 1983 as early as February and March. Some of these had already begun moderate production increases by that time.

Mining Equipment

"It hasn't been this bad this long since I can remember," says one veteran iron or mining expert. Some iron ore interests have even considered researching other uses for iron ore.

"Even if steel starts booming in the states," he says, "we're not certain that we'd be competitive with foreign ore and if this unfinished trend continues, we're out of the picture."

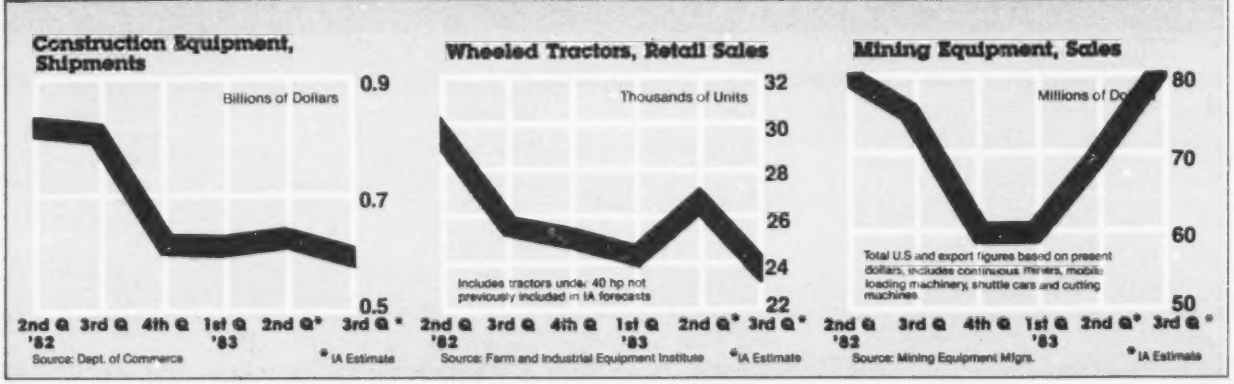
The problem is simple in iron ore mining: over-capacity worldwide. The industry has built efficient mines all over the world, including the traditional areas of upper Michigan and Minnesota in the U.S. As far as U.S. iron ore mining is concerned, there are no plans for any more. In fact, iron ore mining activity these days is not a matter of new mining ventures at all. Activity is measured in terms of reopenings, not ribbon cuttings.

Coal mining equipment manufacturers, on the other hand, are relatively optimistic about the rest of 1983. "I'm happy to see that the summer is shaping up hot and humid," says one coal industry analyst.

Hot and humid means something rather pleasant to coal equipment people: air conditioning. "We see a steady increase throughout '83 in coal burning by utilities and that translates into good business for the coal mining equipment people," he adds.

"We like a long, hot summer," says one manufacturer. "I'd feel safe predicting a good 20 pct increase in '83 over '82 for coal-related equipment, both because of the weather and the general increase in business activity."

Others note that the coal industry has been boosting its applications of high technology equipment. This will translate into more profitable operations in the months ahead. Continuous miners and other types of modern mining equipment are profit makers when volume allows.



QUARTERLY FORECAST

Material Handling

"We see '83 up a good 20 pct over '82," says a major manufacturer of material handling equipment.

Most managers in the industry note significant increases in inquiries over last year and are predicting a steady improvement throughout 1983.

"Our only major fear is in the area of interest rates. Some of what we make is big ticket stuff and is often tied into even bigger ticket projects. A point or two is a very big factor in the decision to go or not. We agree with the President that the cost of borrowed money is too high," says one industry executive.

One special area of optimism for the industry is an "increased awareness" on the part of manufacturing managers about the productivity improvements made possible by material handling systems when they're hooked up with state-of-the-art machinery.

Yet, while those companies in the AS/R end of the business are downright bullish about the rest of 1983, others in the industry have some questions. Recent closings of lift truck plants and some relocation of production "off-shore" have shook the industry to say the least.

"You don't, generally, worry about losing the systems business to Japan. There's an intimacy required in building a large project. And there's a service requirement that can't be handled off-shore. But lift trucks, racks perhaps, belting, and other conveyor parts? We do worry that some of that seems to be following other U.S. business across the Pacific," says an industry observer.

Industry sources also expect good business throughout 1983 due to replacement and maintenance needs in the AS/R business because so many of these systems are now in place. As the economy recovers, increased usage cannot but mean more orders for certain replaceable parts.

Appliances

Figures for the first half of 1983 should show shipments of major home appliances running at a modest 4 pct above 1982's pace. That figure, however, does not begin to tell the extent of growth of appliance shipments in recent months.

By May 1, shipments were up some 28 pct for dishwashers, 32 pct for disposers, 28 pct for electric ranges, 10 pct for refrigerators, 16 pct for microwave ovens, and 9 pct for home laundry equipment, when compared with year earlier levels. Most major appliances have shown seven straight months of increased shipments.

Air conditioner sales, however, have yet to recover from last year's disasterously cool summer and are dampening the industry's otherwise strong performance.

At first appliance sales grew because more houses were being built and sold. New housing starts traditionally account for about 20 pct of new appliance sales. Despite slipping somewhat in March and April, housing starts remain above 1982 totals.

Even if fewer homes are built, the resulting slack in appliance sales is being taken up by consumers looking for replacement appliances. Retail sales growth was non-existent during the first months of this year, but is slowly coming alive. Increases of 1.7 pct in March and 1.6 pct in April were posted.

If the recovery in retail spending should continue—and experts believe that if interest rates remain down, it will—appliance sales should continue to increase through the third and fourth quarters.

If consumer spending continues to gain momentum through the third quarter, the number of appliances shipped for all of 1983 could well be 8 pct or 9 pct above last year's totals. A hot summer could also help air conditioners make a comeback.

Oil Country

With the recent pickup in drilling activity, there appears to be some optimism returning to the oil country tubular goods (OCTG) industry. But, added one oilfield executive, "it is a restrained optimism."

Rig activity hit its low for the year in mid-April (1,807 rigs), but it has been on a steady increase since then. In mid-June, 1,986 rigs were making hole in the U.S.

"What we are seeing here is a little bit of an upturn, but it's nothing real strong. I don't expect that to happen until August. By then we should see a strong pickup which should last throughout the rest of the year," the oilfield official said.

His optimism remains guarded, however, because of the surplus natural gas market which has greatly reduced the demand for deep drilling.

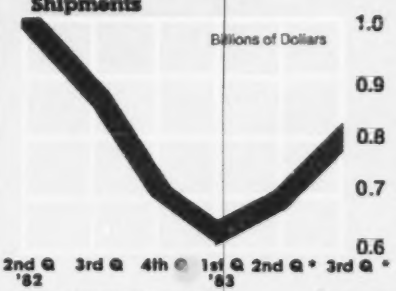
Nevertheless, he is encouraged. He and others believe that major oil companies will start spending more on onshore drilling now that most major offshore lease sales are over.

What does all this mean for OCTG manufacturers and distributors in the third quarter? Not much. There is still too much OCTG inventory on the ground—enough to meet the needs of the oil and gas industry through 1983.

"There's still close to 4 million tons on the ground," remarked a purchasing manager for a major oil company. "It'll be the end of 1983 before a lot of this is worked off. And, the problem is there will still be a lot of that inventory here (even then), because there's going to be a lot of high-strength and alloy material on the ground."

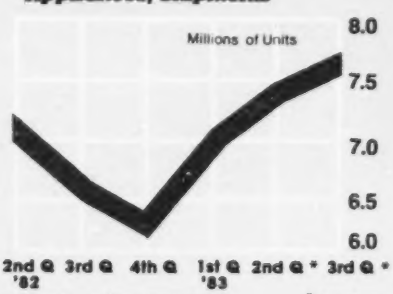
Because of the high level of inventory, the purchasing manager noted that he is now buying pipe, casing and tubulars on a well-to-well basis instead of a quarter in advance. He is also buying most of his OCTG products from other oil companies and distributors.

Material Handling, Shipments



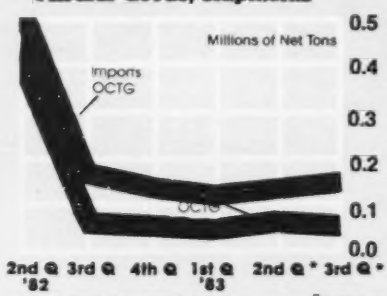
Source: Material Handling Institute *IA Estimate

Appliances, Shipments



Source: Assn. of Home Appliance Mfgrs. * IA Estimate

Tubular Goods, Shipments



Source: American Iron and Steel Institute *IA Estimate

QUARTERLY FORECAST

Castings

Auto oriented foundries have contributed heavily to the gains in gray and ductile iron castings in the second quarter. They'll also do a pretty strong business right through the third quarter, if present plans hold. Some jobbers supplying auto plants with castings, were still raising production in late June.

But the real surprises in the foundry industry's markets is waiting in the fourth quarter. At that time, auto-related castings business should drop off, at least seasonally. But that period could also see the long-waited revival of orders from the construction machinery and farm equipment industries—two important users of heavy castings.

Both these groups begin manufacturing in the fourth quarter for the 1984 spring season. Both are low on castings inventories. Both have closed down some captive foundries that used to meet part of their needs.

The current activity in some auto suppliers foundries, and the very slow tempo in the heavy (capital goods) casting markets, makes for an unprecedented range in the activity in foundry shops. While heavy castings producers labor at 30 to 50 pct of capacity, a few high-output, auto-related job shops are running full on a five day week and are planning Saturday shifts. A few are considering bringing on more melt equipment.

Ductile markets are moving up faster than gray iron. Aluminum foundries have also begun to discuss some new equipment orders with machinery suppliers, though both aluminum and copper-based castings have shown some order softness since late May.

But in heavy ferrous castings, for the first time in a number of quarters, some castings producers think they might make as much tonnage in the fourth quarter as they did in the third.

Forgings

With signs of recovery all around, the forging industry is still waiting for some of that new business to come its way.

There were few signs of recovery through the first half of 1983. And most industry officials see little reason to expect more orders in the third quarter, especially since that period is traditionally slow for the industry.

The chief hope for the quarter is that the rebounding economy will help cushion the usual summer slump. Some officials feel that business will pick up slightly in the fourth quarter because recovery for forge shops usually lags behind the rest of the economy by some six months.

Despite the slowly improving economy, many of the largest buyers of forgings are showing little signs of increased business. The aircraft industry, which gives impression die forge shops almost 42 pct of their business, remains depressed. Commercial aircraft sales are not expected to pick up significantly until 1984.

Farm and off-highway equipment, which accounts for about 11 pct of the impression die forgings' market, remains in a depressed state. The farming equipment market, in particular, will remain weak through the rest of the year. If the housing boom continues, eventually construction companies will work their way through the large amount of machinery left over from the last housing boom and recent company closings—but not yet.

Forgings for the oil field market (which account for about 5 pct of forge shop business) continue to worsen as the oil field industry remains engulfed in excess inventory.

Through April 1983, impression die forging shipments were down 30 pct from a year ago and orders are down 6 pct from a bad 1982. Open die forgers are doing even worse. Orders as of May 1 were down 44 pct.

Heat Treating

Heat processors and heat treaters show signs of hope on the one hand and a degree of uncertainty on the other.

There's a general overtone that recovery is coming—although slowly—but orders for heat processing equipment and billings by commercial heat treaters don't seem to reflect what the industry is hearing from Washington.

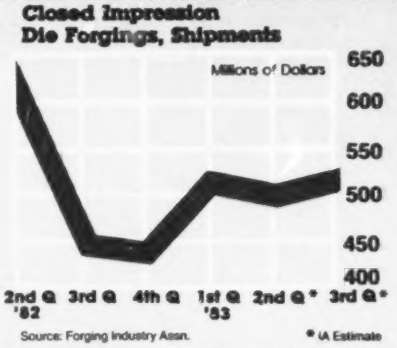
Even the statistics are sending mixed smoke signals. Final figures for industrial heat processing equipment for the first quarter showed good gains in domestic orders over the third and fourth quarters of 1982. However, as encouraging as these gains may be, the first quarter 1983 figures were still about 38 pct below the level of the same period in 1982.

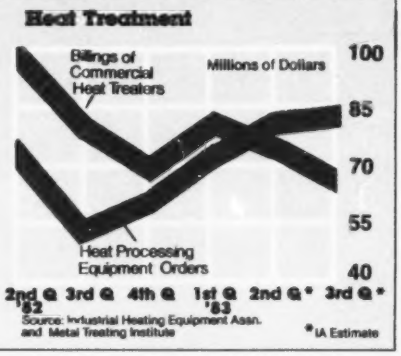
The pattern of activity, or lack of it, is similar among the commercial heat treaters. Billings improved in the first quarter of 1983 over those of the third and fourth quarters of 1982. But again, first quarter billings were more than 26 pct below those of 1982.

With both the equipment builders and heat treaters, there are spotty signs of encouragement. Domestic orders among some builders are picking up, but the general industry trend must still be viewed with caution. Heat treaters, too, can share some optimism.

Another sign of encouragement for heat treaters is that it's an industry that lags the general economy by anywhere from three to six months. With the improvements in industries such as autos, housing and others, heat treaters feel that their share will follow soon.

Builders of industrial heating equipment are beginning to see some signs of improvement in domestic orders among some companies. Overall, they're still predicting that 1983 will end with a slight improvement over 1982.





QUARTERLY FORECAST

Aircraft

The commercial aircraft industry is showing slight improvement from extremely weak levels of the past year, but the overall upsurge still is far less than the economy as a whole and is likely to remain so for the remainder of the year.

Not only are new sales minimal, but used aircraft clutter the market. The situation is further complicated by the novel lease arrangements affecting the industry and the other unique tactics being used by manufacturers to bolster paltry sales.

The latest ripple in the competitive fray involves agreements by airframe manufacturers to accept trade-ins of used aircraft to sell new ones. New orders for the second quarter are up strongly over last year. But in some cases both Seattle-based Boeing and California-based Douglas Aircraft (a subsidiary of McDonnell Douglas) accepted used aircraft in trade.

For example, Boeing placed with customers an average of 11 used aircraft annually during the past several years. In 1983 that figure is expected to triple or quadruple. Some of the planes are sold; others are leased out. The airframe manufacturers contend such tactics allow major airlines to make a profit through unloading inefficient equipment. But another effect is a further glut of the used market.

Both Boeing and Douglas foresee long-term promise in the aircraft industry by the 1990s. But the near-term outlook is bleaker. One industry executive notes that the financial problems of the world's major airlines continue to adversely impact the current market. Unfavorable global economic conditions have resulted in poor profit growth and profitability for the airlines. They are left with excess capacity in certain models of aircraft and insufficient earnings to purchase the new, more efficient airplanes.

Engines & Turbines

The engines and turbines industry has yet to accelerate along with the rest of the economy. Most companies are holding to the forecast that business won't increase noticeably until 1984.

The problem is that customers' business was so far down that it will be quite awhile before they need to buy new equipment.

The consensus is that 1983 will be flat compared to 1982. There is a continuation of big project delays, as few "are progressing past the advanced study stage," according to a source.

Another problem is pricing. Total volume in 1983 may turn out to be the same as 1982, but profits will be down because of soft prices.

Those selling the construction equipment market are complaining the loudest, in spite of the building industry's renewed activity. The tremendous inventory overhang at the manufacturers' and distributors' levels must be absorbed before new orders will affect engine production rates.

The air compression market is not expected to pop until factory operating rates reach more normal levels.

Surprisingly, some manufacturers have the most confidence in an agriculture market pickup. "We expect the payment-in-kind (PIK) program will convince farmers to spend some money on equipment. Then maybe we'll see some orders," says an analyst.

As for the high-ticket end of the industry, the picture is still bleak. With the power generation market so weak, the outlook for turbine generator sets is not good for the short or long term.

An executive sums up his company's forecast: "We don't anticipate business in general to improve that much until the second half of next year. We're looking for some increases before then, but it will probably mean that this year is roughly the same as last year."

Welding

A recovery is under way in welding, but it is certainly nothing to write home about.

From the looks of things, business picked up slightly during the first quarter of 1983, the fourth quarter of 1982 being "the pits," so to speak. This year's second quarter is a little better than the first quarter and the upcoming third quarter should improve a bit as well.

The two industries that could really turn welding around—defense and energy—are still in the "pie in the sky" phase.

Internationally, some say, the welding climate is much worse than it is in this country.

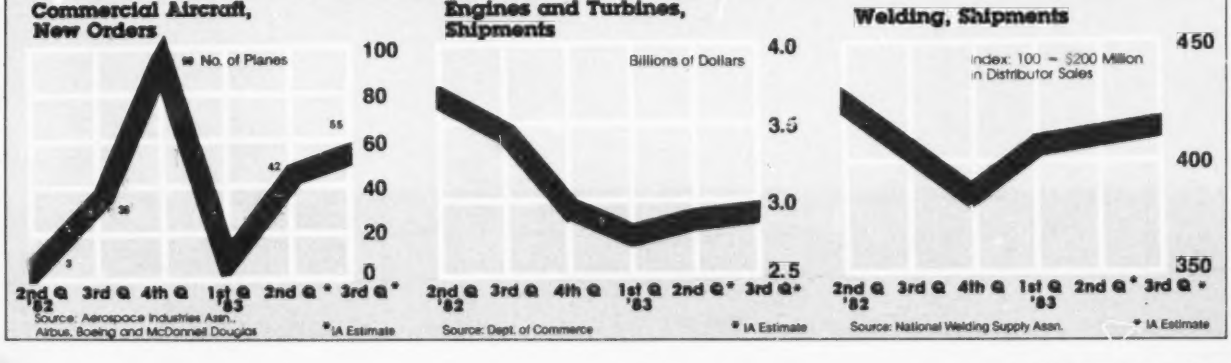
Based on the statistics published by the National Welding Supply Association (NWSA), Philadelphia, December 1982 was the worst month (an index of 118.7) since the February 1979 index of 118.0

The index moved up to 126.0 in January, 131.8 in February, 150.2 in March and 142.8 in April. The March index, incidentally, was the best since November 1981.

According to some of the major welding manufacturers, such consumables as electrodes and shielding gases have been improving, slowly but steadily. The problem is welding equipment.

"Before the recession hit," explains one executive, "a lot of factories were geared up to handle the demand of the 1979-1981 period. Much of this welding equipment is now sitting around idle. It will be some time before we experience another boom in welding equipment," he predicts.

The evidence of sales fluctuations in the NWSA statistics prompts one welding distributor to note: "This irregular pattern is typical of the way a recovery gets moving and in no way reflects doubts about business activities."



QUARTERLY FORECAST

Fasteners

The issue in the U.S. mechanical fastener industry has been *the* issue for years and it's still *the* issue: imports. "Yes, the recovery is underway. No, we're not recovering," says a mechanical fastener industry expert.

Talking about the recovery in the mechanical fastener business is like talking about sex in church. It's interesting, but other issues have priority. Without some kind of relief from imports, plant closings will continue until the market is almost entirely foreign except for some of the "specials" manufacturers.

Meanwhile, many companies agree that order rates are picking up and a recovery is underway. The pick up, however, is not major, sources tell *Iron Age*. They attribute that largely to the increased share of market on the part of Pacific Basin economies.

Still some hope comes from the American military buildup. A tank, for example, contains thousands of mechanical fasteners. "We expect to share in that business, but not like we would have before so much was lost to off-shore producers," says an Ohio manufacturer.

Others in the industry predict more plant closings as the domestic market continues to fall to foreign competition. "It's inevitable," says an industry analyst.

Specials makers have, so far, been able to maintain market share and expect '83 to be significantly better than '82, a year of record lows. "We expect to see a continuing rise in our orders, perhaps as much as 25 or 30 pct above '82 for all of '83," says one.

Still, outside of engineered products, the industry as a whole cannot talk about recovery while it's worried about survival.

And, increasingly its thrust has been towards lobbying in Washington and throughout the country for relief of some kind.

Screw Machine Products

The screw machine products industry, with a very discouraging 1982 behind them, finally has some reason for optimism. The first quarter of 1983 was unexpectedly strong and the second quarter apparently is up slightly from the first quarter.

"The industry may finally have turned the corner," remarks one industry observer. "Going into the second quarter, orders were running about 15 pct above last year's totals."

After the first quarter, there was some backsliding as orders dropped off, but the second quarter should end on an upswing.

Despite improvements this year, manufacturers remain cautious and believe the road to recovery will be slow and rocky. "It looks like relatively slow growth from now on, but we will probably see nothing substantial until the end of the year, and maybe not even then," comments one industry executive.

The biggest reason for this guarded optimism is the gradual improvement in automotive sales. Close to one-third of all screw machine product sales go to that industry. The sustained growth of the appliance industry through the first two quarters and the pick up of housing starts is also helping the industry. Some 6 pct of screw machine products go into household appliances.

However, other areas served by the industry remain mired in the recession. The commercial aircraft industry remains depressed and will not pick up this year. Machine tool, machinery, and farm construction equipment sales continue to be down.

Through the rest of this year industry growth will be gradual, but uneven. Just as sales at the beginning of the second quarter dipped slightly after four months of growth, business for the rest of the year will have its ups and downs.

Stampings

The stamping industry is slowly coming back to life, with shipments expected to rise gradually and order books firming through the third quarter.

Bookings are increasing more sharply than are shipments. The strength appears to be broadly based, with manufacturers tied to the housing and automotive markets showing the most improvement.

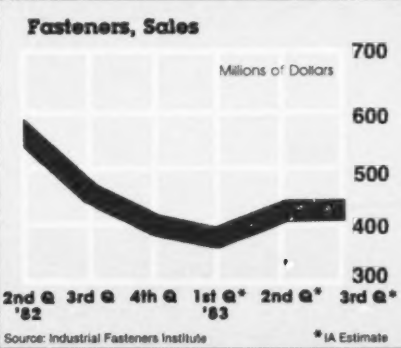
"Automotive is scheduling now for a few months ahead, instead of just one. I guess now they expect to be in business three months from now," one stamper says wryly. "Business has been pretty steady and we expect to be busy in the summer and fall," he adds.

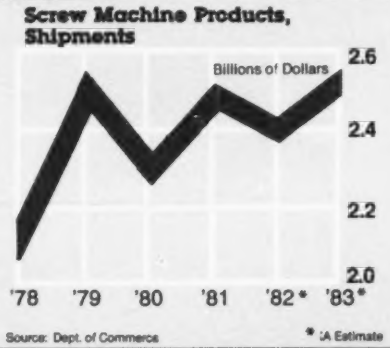
Another says his company is managing to show a profit for the first time since early 1980. He says the "economy's on an uptick," but isn't yet steamrolling.

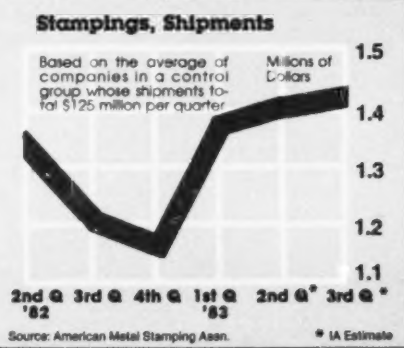
"Everything's relative. We're calling some people back, but when you've got 20 laid off and call two back, you're not setting the world on fire." Nevertheless, he adds, order books for his transportation-tied business look healthy through the third quarter.

A stamper in the plumbing market says right now he can't keep up with all the orders. "It's a much better set of headaches," he hastens to add. This West Coast manufacturer attributes the sharp increase to pressure from wholesalers and suppliers facing a 15-30 pct jump in housing starts and no inventory to meet it.

The cheer from stampers is tempered by some concerns expressed by many. First, the looming Federal deficit may set interest rates and inflation spiralling again, stifling the recovery. Second, the large overhang of used machinery on the market will cause a drag on the recovery of the capital goods market and therefore, on the economy as a whole.







QUARTERLY FORECAST

Bearings

For the antifriction bearing industry, the third quarter brings some good news and some bad news. The good news is that the biggest buyer of bearings, the automotive industry, is beginning to purchase more bearings. The bad news is that nearly every other major user of bearings has yet to pull itself out of the recession.

The rebound in the automotive industry and in aftermarket sales should permit industry growth of several percentage points in the third quarter. Some 30 pct of the ball and roller bearings market is directed at motor vehicles and parts, so even a modest jump in car sales is good news. The appliance industry is doing even better than automotive companies, but only a trickle of bearings go into appliances.

Major capital equipment expenditures are not yet being made despite some recovery by many industries. The construction industry, which accounts for 9 pct of bearings sales, remains depressed. Farm machinery and general industrial machinery also remain down. Other major users of bearings, such as the machine tools industry and mining and oilfield operations, are depressed.

Aftermarket sales remain steady, but intense competition by several firms that are seeking to increase market share, is eating into profits. As companies get back on their feet, bearing industry officials see growth in the aftermarket, as companies replacing old bearings on idle machinery that will be brought in production.

"The aftermarket has been our savior," says one company spokesman. "Without it we would have gone under long ago. We see it picking up in the third quarter. We don't serve the automotive market, but through the second quarter, we have not seen any pickup in orders from our OEM customers."

Valves

Most valve makers have written off 1983, expecting no significant pickup until into 1984.

The dollar forecast for shipments for the year is somewhat deceptive as it is calculated in current dollars. It also does not reflect the steady erosion by imports of domestic unit sales of the lower-dollar, higher-volume commodity end of the market.

As one PVF (pipe valves and fittings) producer points out, "Fifty to 60 pct of valve usage is energy-related, and those markets are flat on their backs. Until they start moving and distributors anticipate it by restocking, there will be no impact on the manufacturer."

He adds that the combination of large inventories and low demand will continue to drag on the industry.

Others are seeing some positive signs, however. "We're still behind last year in shipments to date," says one company analyst, "but we're building toward improvement." His company is even increasing inventories 25 pct in anticipation. "We want to be in position to meet the demand for fast shipment," he explains.

The municipal market is experiencing a bit of an upturn as a result of the interest rate decline. One Eastern company finds that the water market is best, followed by power generation.

This company's orders are up, prompting employee callbacks because of accelerated delivery requirements.

The petroleum market is still limping along and most expect it to lag the recovery of other energy and industrial markets.

In general, cautions one executive, "Inventory liquidation is still going at full pace by the distributors. Prices are still soft and there's no disposition to restock. Until that changes, there will be no appreciable recovery for the manufacturers."

Gears

The gear industry is limping along, with a recovery expected in 1984.

Most industry executives agree on the state of business today: "We're still on the bottom," says one. "The great industrial heartland is still crawling along the bottom, waiting for Godot," remarks another.

Still, most feel business has hit bottom and will only improve; the question is how soon. Since the gear industry tends to lag the general economy by six to nine months, few expect any significant strength this year.

"We have to see the capital goods market pick up before we pick up," is the forecast from a Midwest company. "We need a stronger pickup to impact the capital goods sector and work its way down to us."

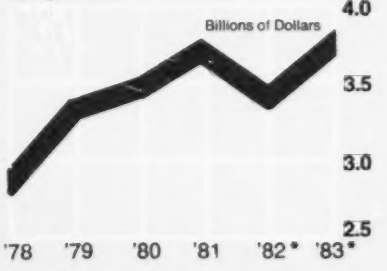
Some markets look brighter than others. Steel is ordering a bit more for repair and "mini-expansions," especially from sheet mills serving automotive. Defense aerospace is holding its own. Some report paper and pulp to be fairly steady. Also, construction is seeing some activity.

The weaker markets include mining and agriculture equipment, water transportation and energy. Machine tools are hurting from "too much foreign competition and so much used equipment on the market from companies who've gone belly-up," laments one executive. Cement is "a big question mark," according to a major gear producer. "It could go boom or bust," he says.

Overall, most report new quote activity is still spotty and order books are not likely to improve much this year. Lead times continue to be short.

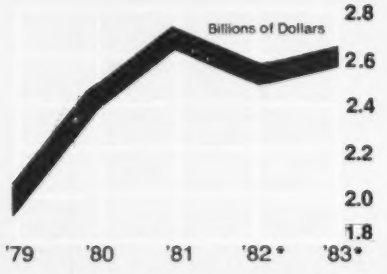
"Customer did not respond to signals of stockouts," says an Eastern manufacturer. "When they finally decide to order, they want it fast. There's a strong reaction to real need and none to perceived need."

Antifriction Bearings, Shipments



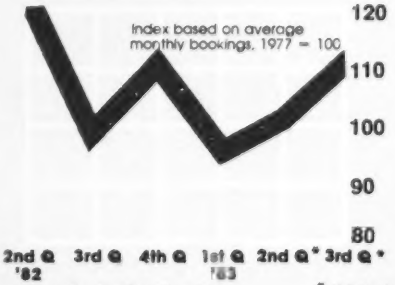
Source: Dept. of Commerce * IA Estimate

Valves, Shipments



Source: Value Mfgrs. Assn. * IA Estimate

Gears, Bookings



Source: American Gear Mfgrs. Assn. * IA Estimate

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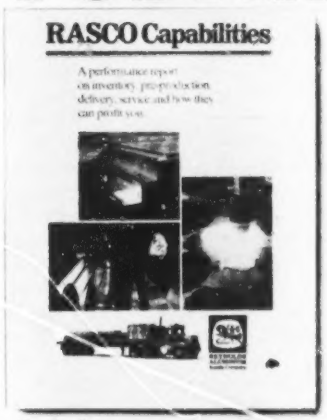

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QUARTERLY FORECAST

Shipbuilding

The last major bulwark supporting the U.S. shipbuilding industry is losing some of its strength.

With merchant shipbuilding at a virtual standstill, the major rebuilding of our Navy had been counted on strongly. Now it appears that the planned five-year program is going to be trimmed.

Recently, the Secretary of the Navy announced that the plan, originally pegged to spend $28 billion by 1988, looks as though it will have to be scaled down to a range of between $10 billion and $13 billion annually. The reason: "Severe budgetary pressures."

Commenting on this the Shipbuilders Council of America said, "This development implies that the Fiscal Year (FY) '84 to FY '88 Naval shipbuilding program could be considerably less than 124 newbuildings. Principal reductions would affect 'out-years.' Previously, 28 ships each were planned for FY '86 and FY '87 and 30 ships for FY '88."

Add to that this kicker. About six weeks earlier the Navy Secretary declared, "There is not enough Navy business to hold the shipbuilding base, and more companies are going to go out of business. We need more of a base than we are going to be able to hold onto with purely Navy building."

Government maritime officials indicated (in May) that only one new ship, a chemical tanker, had been ordered since last November. And there was a prospect that another new one, a dredge, might be ordered this spring.

The chairman of one of the largest and most successful shipbuilding companies has gone on record as saying the Reagan Administration's present maritime policy "will shatter the U.S. shipyards industry; only a limited number of yards will remain to support the Navy's construction and repair needs."

Rail Cars

The new order outlook for freight cars and other railroad equipment remains bleak. There are a few plus signs, but many more negative ones.

On the plus side: Freight cars now in storage have decreased about 10 pct from the almost 300,000 stored at year-end 1982. (Needless to say, this is hardly a strong positive factor.)

Freight car buying and trackwork activity should follow railroad freight business, with a turnaround by late 1983 or early in 1984. This assumes that freight traffic and carloadings will follow a general economic pickup in the second half of 1983.

That's the limited good news. Now here are the negative signs:

The large overhang of surplus freight cars, coupled with weak traffic levels will further depress freight car building activity to levels not seen since the Depression of the 1930s.

Without a sharp rebound in traffic, trackwork maintenance programs will almost equal 1982's weak level.

The present decline in rail traffic, railroad mergers, increased hauling efficiency and the rising use of piggybacks all account for less freight car demand.

With industry backlogs virtually non-existent, even if freight car orders should double this year (an unlikely prospect), shipments will remain substantially below last year's level.

Latest word from the American Railway Car Institute (ARCI) underscores this anemic backlog. As of May 1, the backlog of cars on order and undelivered was 4,326, compared with 10,942 on May 1, 1982.

ARCI says new orders placed this April numbered 615. □

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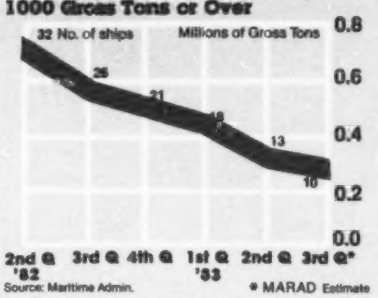
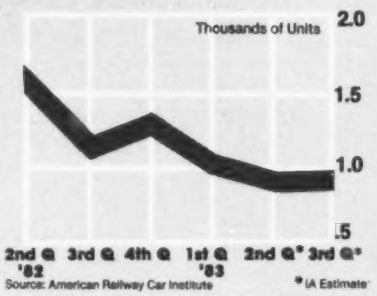
Shipbuilding, Commercial Ships on Order or Under Construction, 1000 Gross Tons or Over



Source: Maritime Admin. * MARAD Estimate

Rail Car, Orders



Source: American Railway Car Institute * IA Estimate

LASERS: A REVOLUTIONARY TOOL IN THE MANUFACTURING ENVIRONMENT

Once just a curiosity, lasers are entering metalworking's mainstream as barriers to laser acceptance by industry continue to fall.

BY ROBERT E. HARVEY

Like "a loud silence" or "a fiery cold," "a metalworking laser" is an oxymoron, an incongruous union of terms. Rolled-up, dirty blue sleeves, down-to-earth inventiveness and practicality, and concerns over day-to-day production characterize the metalworking industry.

Lasers, on the other hand, have always been veiled in the exotic: Witness President Reagan's recent proposal to develop killer satellites armed with laser cannons. Think of lasers and the picture that comes to mind is scientists in white coats tinkering with some equipment out of "Star Wars."

Never mind that lasers can be an effective metalworking tool; their sales are hurt because of an image problem. A laser has difficulty proving to the shop floor that it's just another tool.

The image problem, created in part by the laser manufacturers themselves, is one of a host of major and minor problems that have held up what many considered a natural marriage between lasers and industry. However, without much fanfare many of these obstacles have been or will soon be overcome.

A number of experts believe that the courtship of the laser by the metalworking industry will now begin in earnest. That is not to say that industry is just discovering the laser. Some 5,000 are in operation today, but most of those service only the electronics and microelectronics industry (see table).

"I think right now is perhaps the beginning of the period of growth the laser industry has envisioned for years," says David A. Belforte, president, Belforte Associates, Sturbridge, Mass., consultants on industrial lasers. "There has been a lot of promise that has not been fulfilled, but I think that a number of circumstances have come together at the same time which makes the potential for the penetration of the laser into manufacturing very attractive now."

In general, these changing circumstances involve changes in attitude, changes in hardware, changes in cost, and a growing library of laser manufacturing data.

A laser has a number of properties, but for metalworking purposes, it need be thought of only as a source of intense, finely focused heat. This scalpel of light principally is used for cutting, welding, heat treating and etching operations. Its high-energy, narrow-beam properties allow it to heat rapidly, then quickly move on. Operations are exact and metal surrounding the work area is unaffected by the sudden heat.

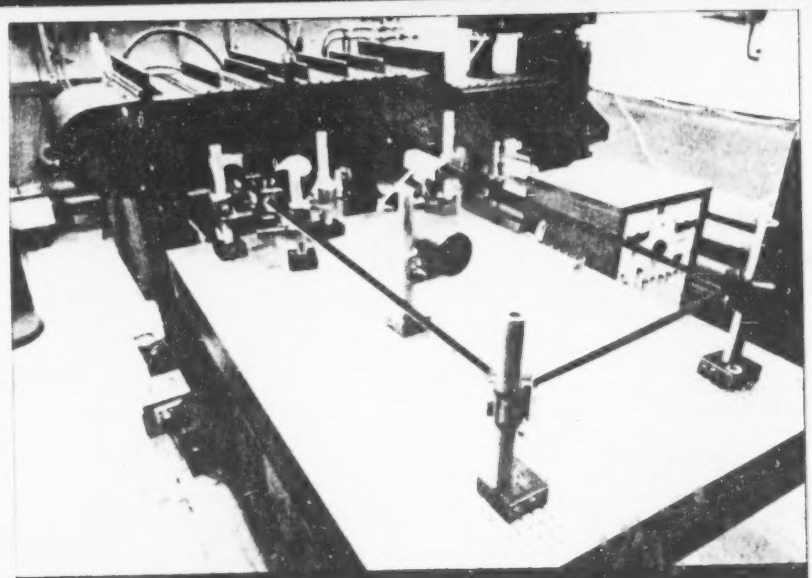
"All the processes with the laser need very little cleanup, so you often can remove a step from the manufacturing process," comments one laser operator. "By heat treating with a laser, you can eliminate some straightening and grinding operations."

Since the laser is only a beam of light, it can be manipulated with a mirror. This ability to easily alter the beam's path makes the laser very flexible. In metalworking, for example, ordinarily the workpiece must be brought to the machine tool. A laser beam, however, can go to the workpiece. In addition, by splitting the beam, a laser can do a number of operations at the same time. Paradoxically, this very flexibility has hindered the acceptance of the laser as a metalworking tool.

"Everyone in the laser business ran around for years talking about flexibility and they didn't realize that that was the last thing in the world that many people wanted," explains Mr. Belforte. "What they wanted was a dedicated machine that produced parts at the lowest price."

Without expert laser operators, firms that buy lasers primarily for flexibility are asking for trouble. "The laser seems to work best when you set it up for a single process and let it run 24 hours a day with some occasional downtime," says Mark Baldwin, general manager, Iowa Laser Technology, a laser-operating job shop in Cedar Falls, Iowa. "My feeling is that firms need considerable expertise to change from one process to another."

Mr. Baldwin also stresses that equipment alterations needed to change from one process to another can be expensive. "The laser often comes with some sort of secondary tooling that is specifically designed for one operation. If the manufacturer is going to change a part size or a process, he may end up spending $100,000 for retooling."



LASER USAGE IN THE UNITED STATES BY INDUSTRY

SIC	Manufacturing Category	Number of Lasers Under 100 W*	100-999 W	Over 999 kW**
211	Cigarettes	—	60	—
232	Men's & women's suits	—	13	—
265	Cardboard boxes	—	25	—
2834	Pharmaceutical products	3	—	—
3041	Plastic hose	—	5	—
3069	Fabricated rubber products	—	2	—
3231	Products made of glass	17	17	3
3489	Ordnance & accessories	—	—	2
3511	Turbines	—	8	5
3523	Farm machinery & equipment	—	10	—
3551	Food products machinery	3	—	—
3561	Pumps & pumping equipment	—	—	3
3661	Telephone equipment	45	—	—
3573	Computer peripherals	34	22	1
3841	Heart assist devices	—	14	—
3769	Aerospace	—	—	1
3721	Aircraft	30	2	2
3951	Pens, mechanical pencils & parts	—	2	—
3432	Heat exchanger	—	—	1
3585	Air conditioning (auto)	—	—	10
3873	Watches, clocks & parts	10	—	—
3851	Ophthalmic goods	2	—	—
3621	Electric motors	1	1	2
3559	Appliances	1	2	3
3674	Semiconductors	1500	400	—
3679	Hybrid electronics	2000	—	—
3691	Storage batteries	—	5	2
3713	Truck & bus bodies	—	—	1
3714	Motor vehicle parts & accessories	11	3	40
3743	Railroad equipment	—	—	4
3842	Surgical appliances & supplies	5	—	—
3843	Dental equipment	—	3	—
	Totals:	**3662**	**594**	**80**

Source: ITT Research Institute
* Watt
** Kilowatt

"Sometimes a buyer is told that this laser is going to cut, weld and heat treat, but he is not really shown that it takes different accessories and different expertise to let him do these things," reports Mr. Baldwin.

Rather than selling the laser as an exotic tool that can do anything, laser manufacturers are developing systems that are more dedicated, more rugged, and more able to compete effectively with other processes on the production line.

"The laser industry has finally responded to the needs and wants of the user by getting away from the laser itself and promoting the laser as a solution to a manufacturing problem," relates Mr. Belforte. "People can now purchase a laser machine tool, if you will. You can now buy a processing system and the fact that it happens to be a laser is really inconsequential."

What is important is that a manufacturer now can produce a part at a lower price, not that he is using a laser. The laser industry is no longer selling lasers just because of their unique characteristics or for their ability to tackle unique jobs. They are being sold on their ability to be cost-effective with other processes. But to challenge the conventional machine tools on their own turf, lasers had to be designed to handle the rough and tumble of the shop floor.

"One of the major reasons why lasers are looking more attractive to the manufacturer is that laser manufacturers have begun developing rugged, reliable, industrialized equipment," explains Mr. Belforte. "The industry for years gave lip service to this need and it has only been in the past four or five years that they have begun responding to the needs and demands of the user and put into these systems the ability to operate in the factory and run for long periods of time."

While the emphasis is on adapting the laser to the factory, manufacturers have not given up trying to harness the laser's flexibility. "Particularly with our YAG laser, flexibility is one of its major advantages," says a spokesman for Control Laser Corp., Orlando, Fla. "We can weld, drill, cut, anneal and heat treat with the same laser by changing the beam characteristics. That is where our computer, which we developed to optimize the performance, is invaluable. You can put in a new program and go from welding to drilling, cutting or whatever and that you cannot do with conventional equipment."

Lasers are increasingly taking on the look and duties of machine tools. These lasers are showing up on transfer lines, in batch manufacturing operations, as

stand-alone machines in places like job shops, and as machines working in tandem with other machines.

A laser from Coherent, Inc., Palo Alto, Calif., for example, has found its way into what is apparently the first fully automatic in-line transfer-type drilling machine. The system has been installed in an automobile engine plant in Australia.

Systems called laser machining centers, which cut and drill on commands from computer controls, are showing up in increasing quantities. Coherent has one which uses Fanuc controls that permits digitizing or programming the three axes of motion. Raytheon Co., Waltham, Mass., also has a machining center, as does Control Laser and others.

Besides operating alone, lasers are working in union with conventional machine tools. The first U.S. machine-laser combination was produced by the Strippit Division of Houdaille Industries. In 1978 CNC turret punch-press was married to a high-power CO_2 laser. Since then, other manufacturers such as C. Behrens Machinery Co., Inc., Trumpf America, Inc., the Wiedemann Div. of Warner & Swasey Co. W. A. Whitney Corp., U.S. Amada Ltd., and Raskin, SA have developed tandem operations.

Not all the joint operations involve punching and cutting sheet metal. The Omni-Lase 2001 from Photon Sources, Inc., Livonia, Mich. is used in combination with a Bridgeport three-axis CNC milling machine. Reportedly the unit can mill, bore, drill, cut, weld, surface harden, scribe and pierce a wide range of materials. The Bendix Industrial Group has developed a system that combines a turning machine and laser.

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Source: IIT Research Institute

The laser is highly amenable to flexible automation and can be integrated into at total manufacturing system.

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HI-TECH REPORT

(Cont. from p. 51)

After the workpiece is machined, it is then surface-hardened by the laser.

As laser manufacturers listen more intently to what manufacturers want and need, barriers that have kept lasers from the factory are being removed. Probably the biggest obstacle to increased laser usage, however, is their high price. But even this barrier is being reduced. Firms are beginning to recognize the need for increased automation and higher productivity. A laser fits in well with increased automation. It is easily computerized and responds rapidly to signals.

"Companies are recognizing that if they don't find a better way of doing things they are not going to survive. And the laser despite its high price is often that better way," says one industry official.

Firms are starting to spend money now because they know that they will need that laser in order to remain competitive somewhere downstream.

Also, the cost of lasers are not going up with inflation and in some instances prices are coming down. "I know where a couple of new 600w CO_2 lasers are now selling for around $50,000. That was the price we used to pay for 350w lasers 12 years ago," reports Mr. Belforte.

Despite holding the line on prices, companies have to be very careful that the laser they buy will soon pay for itself.

"From a cost standpoint, a company that doesn't have the expertise in operating lasers would be best off looking for that particular application that will make use of the laser full time," explains Mr. Baldwin. "Everything else would be best farmed out to a job shop. I look at it sort of like the time-sharing approach of computers 15 years ago. Then they were just too expensive and too dependent on skilled personnel to operate. Time sharing was a necessity. Any machine that costs $250,000 has the potential for time-sharing."

As time goes on, however, lasers will become more affordable. "In the near future I think we will see some cost reductions," reports Frederic D. Seaman, science advisor, IIT Research Institute, Chicago. "The main driver for these reductions is going to be volume production." As more barriers go down and more companies buy lasers, prices will drop.

And speaking of low prices, the Japanese are preparing to market lasers in the U.S. This move certainly will have an effect on prices, although at present Japanese lasers sell at prices comparable to those in the U.S.

According to Mr. Seaman, the major push by the Japanese is not expected for a few years yet, primarily because the Japanese have not yet developed a strong home market for lasers. Nevertheless, laser development is one of the fields that the Japanese government has singled out as having high growth potential. A lot of research money is being spent on development.

Another problem that has slowed laser acceptance has been the lack of operating standards and documentation, especially in the area of heat treating and, to a lesser extent, in welding.

"In case hardening, there is a dearth of research," says Mr. Baldwin. "There are a lot of people using it, but I'm not convinced that they all understand what is going on metallurgically."

Parameters on laser cutting and drilling are for the most part available; welding statistics are coming in, but ad-

Classification of Industrial Lasers

Lasers for manufacturing are typically divided into a light class (several to several hundred watts) and a heavy class (one to twenty kilowatts). Another way to categorize lasers follows:

Category One, under 100 watts: This group is principally made up of the lower power continuous wave, yttrium aluminum garnet (YAG) type of neodynmium (Nd) solid-state laser, pulsed at rapid rates using and electro-optical device called a Q switch. It is particularly adapted to the microelectronics industry.

Category Two, 100-999 watts: Lasers in this group are of the pulsed power supply type. CO_2 and solid-state technologies compete for many applications. (Competitors include the ruby, Nd glass, Nd YAG, and CO_2 lasers.) The active commercial range at present is from 100 to 500 watts.

Category Three, over 999 watts: The lasers in this group are often called multi-kilowatt. They are all based on CO_2 technology and operate in the continuous wave mode.

Source: IIT Research Institute

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For Information, Circle 125

equate statistics on heat treating are still a little ways off.

From the laser manufacturer's point of view, a major barrier to improved sales is lack of information by people in industry. "I personally believe that the biggest reason hindering sales to industry is probably the lack of knowledge of people of what the laser can do," explains James Johnson, production manager, solid state, Control Laser Corp. "I think that people still think that the laser has to compete with existing machine tool processes. If they knew the capacity of the laser, then they could take advantage of its processing characteristics when they are designing their process."

Although the laser must compete with other equipment in the factory, it is unwise to begin comparing a laser head-to-head with another specific machine.

Often the justification for purchasing a laser is not how it compares with another machine, but how it affects the entire manufacturing system.

"You don't just rip something off the line and slam a laser in its place and necessarily expect it to be cost effective," reports Mr. Seaman. "The elimination of secondary operations is the biggest justification for a laser."

One barrier to laser acceptance really isn't a barrier. A number of people remark that the high energy usage of the laser makes it unacceptable. In reality, lasers are as energy efficient as other production equipment.

"Research has shown that as a general rule when you compare a laser's energy consumption with other processes, you will always win in welding and you will always lose in cutting. But the amounts of energy used in cutting are so small, why worry? In heat treating, where a lot of energy is used, you can win or lose depending on the amount of engineering you do to decide where you are going to harden the part," says Mr. Seaman. "If you want to make the part look exactly like a carburized or induction-heated part, then you lose, but only slightly."

Despite some dissent from people who see little growth in the heat-treating industry in the next few years, a number of people see the biggest sales of lasers going for heat-treating applications.

Mr. Baldwin, for example, sees case hardening as "a major frontier for the industry." Mr. Seaman has a similar vision as does an official from Photon Sources. Continued growth also is expected in combining lasers with machine tools so they become "an intregal part of the machine tool itself." This packaging has already begun, but tomorrow's systems will find lasers linked to multiple machine tools, tools arranged into some sort of manufacturing cell.

According to Mr. Seaman, flexible manufacturing systems (FMS) hold the most potential for dealing with batch manufacturing, which accounts for 80 pct of U.S. manufacturing. "However, the benefits of FMS are presently attainable in only one class of manufacturing operations—machining," he says, adding that if the benefits of flexible automation are to have a wide range of forming, machining, surface treating and assembly operations, a laser must be employed in the process.

While flexibility might be a goal for future laser development, ruggedness, durability and simplicity are important goals for today. □

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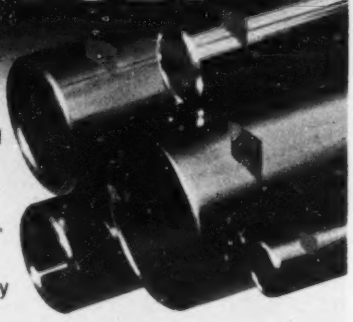

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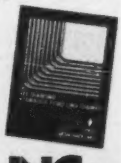

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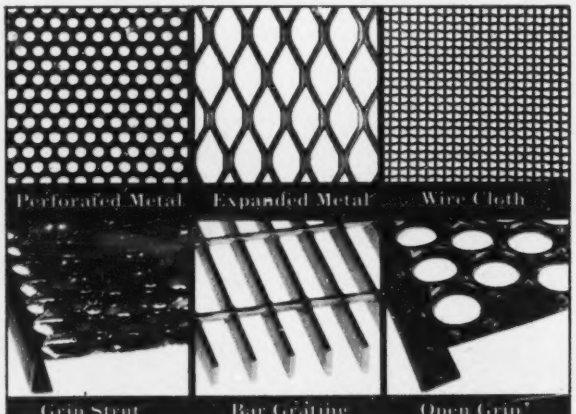

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MATERIALS NEWSFRONT

Price & Production Data

Steel production by districts, thousands of tons (000 omitted)

	Last Week	Two Weeks Ago	Month Ago	Year Ago
North East Coast	203	210	185	165
Buffalo	32	30	31	32
Pittsburgh	199	190	199	145
Youngstown	109	94	103	76
Cleveland	115	121	130	101
Detroit	134	129	133	118
Chicago	408	463	475	404
Cincinnati	97	95	89	73
St. Louis	74	67	72	35
Southern	137	136	130	139
Western	85	86	80	77
U.S. Production	1,593	1,621	1,627	1,365

Source: American Iron & Steel Institute

Lake Superior Ore Prices

51.50% Fe Natural delivered lower Lake ports. Rail transportation, handling and unloading may be charged to the account of the buyer. Coarse ore 80¢ premium.

Pellets (per iron unit natural)..... gross-ton 80.50-86.9*
Old range, non-bessemer ..... gross-ton $32.78
Mesabi, regular-unscreened ..... gross-ton $32.53
Mesabi, non-bessemer.....gross-ton $32.25-32.53**

*80.50¢—Pickands Mather as of 1/27/81.
**86.9¢—U. S. Steel as of 3/15/82. Cleveland-Cliffs as of 2/26/82. Oglebay Norton as of 3/25/82, and Hanna Mining as of 2/26/82.

Steel Production, Composite Prices

(Effective June 20, 1983)

U.S. Steel Production	Last Week	Two Weeks Ago	To Date 1983	To Date 1982
Net tons, in thousands	1,593	1,621	37,231	38,899
Capability Utilization Rate	55.1	56.1	53.3	54.6

Composite Prices	This Week	Week Ago	Month Ago	Year Ago
Finished Steel Base* (¢/lb.—eff. 2/14/83)	26.217	26.217	26.217	25.297
Pig Iron* * (Net ton = 2000 lbs.)	$213.00	$213.00	$213.00	$213.00
Scrap No. 1 hvy.* * * (Gross ton = 2240 lbs.)	$ 70.83	$ 70.83	$ 70.50	$ 56.83
No. 2 bundles	$ 46.17	$ 46.50	$ 46.50	$ 43.17

Scrap Comparison (Gross Ton)				
No. 1 steel, Pittsburgh	$ 72.50	$ 72.50	$ 71.50	$ 61.50
No. 1 steel, Philadelphia	68.50	68.50	68.50	61.50
No. 1 steel, Chicago	71.50	71.50	71.50	53.50
No. 1 bundles, Detroit	71.50	71.50	69.50	52.50
Low Phos., Youngstown	75.50	75.50	71.50	66.50
No. 1 mach'y cast., Pgh	74.50	74.50	74.50	76.50
No. 1 mach'y cast., Phila	98.50	98.50	98.50	103.50
No. 1 mach'y cast., Chi.	108.50	108.50	108.50	107.50

*Finished Steel Composite
Weighted index of steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.
**Pig Iron Composite
Based on average prices for basic and foundry pig iron at representative producing points within the U.S.
***Steel Scrap Composite
Average of No. 1 hvy. melting steel scrap and No. 2 bundles delivered to consumers at Pittsburgh, Philadelphia and Chicago.

Nonferrous Prices

(Effective June 20, 1983)
Prices obtained in trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated.

Primary Metal Prices

(cents per lb.)	current price	last price	date of change
Aluminum	76.00 (Nom.)	76.00-80.00	1/4/82
Copper (C)	78.00	77.50-78.00	6/20/83
Lead	19.00-23.00	19.50-23.00	6/7/83
Magnesium Ingot	138.00	134.00-138.00	6/1/83
Nickel	329.00	350.00	11/25/81
Titanium Sponge	555.00-585.00	555.00	4/29/82
Zinc	40.00	38.00-40.00	4/27/83

ALUMINUM: 99.5%. COPPER (C) = cathode. LEAD: common grade. MAGNESIUM: 99.8% pig. Velasco, Tex. NICKEL: electro., Port Colborne, Canada. ZINC: high grade.

Antimony, American Laredo, Texas . $2.00
Beryllium-aluminum 5% Be, per lb. contained Be $215.00
Beryllium-copper, per lb. cont. Be $130.00
Beryllium 97% powder 200 ..... $166.00
Bismuth, ton lots ..... $1.55-$1.70
Cadmium, under one ton ..... $1.05-$1.15
Calcium, ton lots, crown $3.05
Chromium, 99.8% $3.75
Cobalt, 99%, cathode $12.50
Gold per troy oz. $415.75
Indium, dollars per troy oz. $3.50
Iridium, dollars per troy oz. $600
Magnesium sticks, 10,000 lbs. $1.91
Mercury, per 76-lb. f.o.b. N.Y. ..$295-$305
Molybdenum, lb. tech. moly oxides, 20 lb. MO can $5.85
Nickel oxide sinter at U.S. points of entry $3.12
Palladium, per troy oz. $140
Platinum, per troy oz. $475
Rhodium, per troy oz. $600.00
Silver ingots, per troy oz. $11.90
Vanadium $4.94
Zirconium sponge ..... $12.00-$17.00
(Per lb. unless otherwise noted)

Straits Tin Price

(U.S. cents per lb, EX-SMELTER, based on daily market in Penang in Malaysian dollars per kilo.)

June 13—597.57
June 14—597.60
June 15—600.60
June 16—600.88
June 17—601.91

Scrap Prices

Brass Mill Scrap

(Cents per lb; over 20,000 lbs. add 1¢ per lb)

	Solids	Turning
Copper	77⅛	68¼
Yellow brass	64½	61⅛
Red brass	70⅝	65⅝
Comm. bronze	72¾	67
Mang. bronze	64⅛	61¼
Free cutting rod ends	59	58

Custom Smelters Scrap

(Cents per lb., carload lots, del. refinery)

No. 1 copper wire	69
No. 2 copper wire	60
Light copper	51

Ingot Makers Scrap

(Cents per lb., carload lots, del. refinery)

No. 1 copper wire	65
No. 2 copper wire	56
Light copper	47
No. 1 composition	56
No. 1 comp. turnings	53
Hvy. yellow brass solids	37
Hvy. yellow brass turnings	29
Radiators	45

Aluminum

New mixed clips	42	—43
Old sheet	39	—40
Old cast	39	—40
Clean dry borings	39	—40

Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Aluminum

Segregated clippings	33	—34
Mixed L.C. clips	28	—29
Old sheets and cast	25	—26
Borings and turnings	17	—18
Duraluminum clippings	28	—29

Copper and Brass

No. 1 copper wire	61	—62
No. 2 copper wire	54	—55
Light copper	48	—49
Radiators	38	—39
No. 1 composition	48	—49
No. 1 composition turn'gs	45	—46
Cocks and faucets	34	—35
Clean heavy yellow brass	32	—33
Brass Pipe	33	—34
New soft brass clippings	48	—49

Lead

Heavy soft lead	9	—10
Whole batteries	3	— 4
Type metal	15	—16
Electrotype	14	—15

Nickel

Nickel solids	110	—120
Nickel rod ends	110	—120
Nickel sheets, clips	110	—120
Nickel turnings	50	— 60

Zinc

New zinc clippings	15	—16
Old diecast zinc	9	—10

EFFECTIVE JUNE 20, 1983

MATERIALS NEWSFRONT

(Effective June 20, 1983) Prices obtained in trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated. Prices are the opinions of *Iron Age* editors and correspondents, based on contacts with dealers, brokers, generators and users in the industry on the effective date listed above.

Ferrous Scrap Prices

Pittsburgh

No. 1 hvy. melting	$ 72.00 to	$ 73.00
No. 2 hvy. melting	61.00 to	62.00
No. 1 dealer bundles	87.00 to	88.00
No. 1 factory bundles (auto)	87.00 to	88.00
No. 2 bundles	51.00 to	52.00
No. 1 busheling	86.00 to	87.00
Machine shop turn.	7.00 to	8.00
Shoveling turnings	26.00 to	27.00
Cast iron borings	25.00 to	26.00
Low phos. punchings plate	88.00 to	89.00
Heavy turnings	61.00 to	62.00
No. 1 RR hvy. melting	88.00 to	89.00
Rails 2 ft. and under	103.00 to	104.00
Scrap rails, random lgth.	88.00 to	89.00
RR specialties	94.00 to	95.00
No. 1 machinery cast	74.00 to	75.00
Cupola cast	67.00 to	68.00
Heavy breakable cast	30.00 to	31.00
Stainless		
18-8 bundles and solids	590.00 to	600.00
18-8 turnings	490.00 to	500.00

Chicago

No. 1 hvy. melting	$ 71.00 to	$ 72.00
No. 2 hvy. melting	66.00 to	67.00
No. 1 dealer bundles	84.00 to	85.00
No. 1 factory bundles (auto)	85.00 to	86.00
No. 2 dealer bundles	44.00 to	45.00
No. 1 busheling	82.00 to	83.00
Shredder scrap	79.00 to	80.00
Machine shop turn.	17.00 to	18.00
Mixed bor. and turn.	18.00 to	19.00
Shoveling turnings	24.00 to	25.00
Cast iron borings	39.00 to	40.00
Low phos. forge crop	89.00 to	90.00
Low phos. punchings plate ¼ in. and heavier	98.00 to	99.00
Low phos. 2 ft. and under	95.00 to	96.00
No. 1 RR hvy. melting	82.00 to	83.00
Scrap rails, random lgth.	79.00 to	80.00
Reroller rails	90.00 to	91.00
Rails, 2 ft. and under	94.00 to	95.00
RR couplers and knuckles	82.00 to	83.00
RR car axles	112.00 to	113.00
No. 1 machinery cast	108.00 to	109.00
Cupola cast	95.00 to	96.00
Stove plate	94.00 to	95.00
Steel car wheels	82.00 to	83.00
Stainless		
18-8 bundles and solids	560.00 to	570.00
18-8 turnings	460.00 to	470.00
430 bundles and solids	135.00 to	140.00
430 turnings	100.00 to	105.00

Philadelphia

No. 1 hvy. melting	$ 67.00 to	$ 70.00
No. 2 hvy. melting	54.00 to	57.00
No. 1 dealer bundles	80.00 to	83.00
No. 2 dealer bundles	41.00 to	44.00
No. 1 busheling	80.00 to	83.00
Shredder scrap	81.00 to	84.00
Machine shop turn.	23.00 to	26.00
Mixed bor. and turn.	23.00 to	26.00
Shoveling turnings	38.00 to	41.00
Low phos. 5 ft. and under	79.00 to	82.00
Low phos. 2 ft. punchings	90.00 to	93.00
Electric furnace bundles	93.00 to	96.00
RR specialties	81.00 to	84.00
Rails, 2 ft. and under	92.00 to	95.00
Cupola cast	58.00 to	61.00
Heavy breakable cast	53.00 to	56.00
No. 1 machinery cast	97.00 to	100.00

Detroit

Broker buying prices per gross ton on cars:

No. 1 hvy. melting	$ 53.00 to	$ 54.00
No. 2 hvy. melting	51.00 to	52.00
No. 1 dealer bundles	71.00 to	72.00
No. 2 bundles	36.00 to	37.00
No. 1 busheling	69.00 to	70.00
Drop forge flashings	45.00 to	46.00
Machine shop turn.	25.00 to	26.00
Mixed borings and turn.	15.00 to	16.00
Shoveling turnings	25.00 to	26.00
Cast iron borings	15.00 to	16.00
Heavy breakable cast	34.00 to	35.00
Mixed cupola cast	50.00 to	51.00
Automobile cast	73.00 to	74.00
Stainless		
18-8 bundles and solids	470.00 to	480.00
18-8 turnings	350.00 to	360.00
430 bundles and solids	115.00 to	125.00

Youngstown

No. 1 hvy. melting	$ 67.00 to	$ 70.00
No. 2 hvy. melting	36.00 to	39.00
No. 1 dealer bundles	78.00 to	81.00
No. 2 dealer bundles	37.00 to	40.00
Machine shop turn.	1.00 to	3.00
Shoveling turnings	5.00 to	8.00
Low phos. plate	74.00 to	77.00
Electric furnace bundles	71.00 to	74.00
Galvanized bundles	61.00 to	64.00

Cleveland

No. 1 hvy. melting	$ 60.00 to	$ 63.00
No. 2 hvy. melting	27.00 to	30.00
No. 1 dealer bundles	76.00 to	79.00
No. 1 factory bundles	74.00 to	77.00
No. 2 bundles	22.00 to	25.00
No. 1 busheling	76.00 to	79.00
Machine shop turn.	1.00 to	4.00
Mixed bor. and turn.	1.00 to	4.00
Shoveling turnings	3.00 to	6.00
Cast iron borings	6.00 to	9.00
Cut structural & plates, 2 ft. and under	92.00 to	95.00
Low phos. punchings plate	92.00 to	95.00
Drop forge flashings	31.00 to	34.00
Foundry steel, 2 ft. & under	57.00 to	60.00
No. 1 RR hvy melting	61.00 to	64.00
Rails, 2 ft. and under	97.00 to	100.00
Rails, 18 in. and under	98.00 to	101.00
Steel axle turnings	67.00 to	70.00
Railroad cast	80.00 to	83.00
No. 1 machinery cast	87.00 to	90.00
Cupola cast	60.00 to	63.00
Stove plate	45.00 to	48.00
Stainless		
18-8 bundles	325.00 to	335.00
18-8 turnings	275.00 to	285.00
430 bundles	80.00 to	85.00

Buffalo

No. 1 hvy. melting	$ 33.00 to	$ 34.00
No. 2 hvy. melting	23.00 to	24.00
No. 1 busheling	38.00 to	39.00
No. 1 dealer bundles	36.00 to	38.00
No. 2 bundles	20.00 to	21.00
Machine shop turn.	9.00 to	10.00
Mixed bor. and turn.	16.00 to	17.00
Shoveling turnings	17.00 to	18.00
Cast iron borings	15.00 to	16.00
Low phos. plate	56.00 to	57.00
Structural and plate, 2 ft. and under	54.00 to	55.00
Rails, 2 ft. and under	50.00 to	51.00
Scrap rails, random lgth.	30.00 to	31.00
No. 1 machinery cast	71.00 to	72.00
No. 1 cupola cast	48.00 to	49.00

St. Louis

No. 1 hvy. melting	$ 63.00 to	$ 64.00
No. 2 hvy. melting	52.00 to	53.00
Foundry steel, 2 ft.	52.00 to	53.00
No. 1 dealer bundles	63.00 to	64.00
No. 2 bundles	49.00 to	50.00
Machine shop turn.	12.00 to	13.00
Shoveling turnings	18.00 to	19.00
Cast iron borings	30.00 to	31.00
No. 1 RR hvy. melting	63.00 to	64.00
Rails, random length	69.00 to	70.00
Rails, 18 in. and under	84.00 to	85.00
RR specialties	80.00 to	81.00
Cupola cast	70.00 to	71.00
Heavy breakable cast	48.00 to	49.00
Stove plate	75.00 to	76.00
Cast iron car wheels	49.00 to	50.00
Rerolling rails	96.00 to	97.00
Unstripped motor blocks	55.00 to	56.00

Birmingham

No. 1 heavy melting	$ 64.00 to	$ 65.00
No. 2 heavy melting	59.00 to	60.00
No. 1 dealer bundles	64.00 to	65.00
No. 2 bundles	45.00 to	46.00
No. 1 busheling	63.00 to	64.00
Shredder scrap	77.00 to	78.00
Machine shop. turn.	24.00 to	25.00
Shoveling turnings	35.00 to	36.00
Cast iron borings	35.00 to	36.00
Electric furnace bundles	62.00 to	63.00
Elec. furnace, 3 ft. & under	59.00 to	60.00
Structural and plate, 2 ft.	80.00 to	81.00
Structural and plate, 4 ft.	77.00 to	78.00
No. 1 RR hvy. melting	63.00 to	64.00
Scrap rails, random lgth.	68.00 to	69.00
Rails, 18 in. and under	84.00 to	85.00
Angles and splice bars	76.00 to	77.00
No. 1 cupola cast	84.00 to	85.00
Unstripped motor blocks	59.00 to	60.00

Cincinnati

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 52.00 to	$ 53.00
No. 2 hvy. melting	50.00 to	51.00
No. 1 dealer bundles	57.00 to	58.00
No. 2 bundles	27.00 to	28.00
Machine shop turn.	6.00 to	7.00
Shoveling turnings	8.00 to	9.00
Cast iron borings	11.00 to	12.00
Low phos. 18 in. and under	75.00 to	76.00
Rails, random length	60.00 to	61.00
Rails, 2 ft. and under	80.00 to	81.00
No. 1 cupola cast	60.00 to	61.00
Heavy breakable cast	25.00 to	26.00
Drop broken cast	69.00 to	70.00

New York

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 34.00 to	$ 35.00
No. 2 hvy. melting	30.00 to	32.00
No. 2 dealer bundles	22.00 to	23.00
Mixed bor. and turn.	7.00 to	8.00
Machine shop turn.	4.00 to	5.00
Shoveling turnings	10.00 to	12.00
Clean cast. chem. borings	34.00 to	35.00
No. 1 machinery cast	89.00 to	90.00
Mixed yard cast	38.00 to	39.00
Heavy breakable cast	14.00 to	15.00
Stainless		
18-8 prepared solids	480.00 to	500.00
18-8 turnings	380.00 to	400.00
430 prepared solids	70.00 to	80.00
410 solids	60.00 to	70.00

Boston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 38.00 to	$ 40.00
No. 2 hvy. melting	28.00 to	30.00
No. 1 dealer bundles	44.00 to	46.00
No. 2 bundles	29.00 to	31.00
No. 1 busheling	44.00 to	46.00
Shredder scrap	43.00 to	45.00
Machine shop turn.	3.00 to	5.00
Shoveling turnings	7.00 to	9.00
No. 1 machinery cast	100.00 to	105.00
Mixed cupola cast	28.00 to	30.00
Heavy breakable cast	8.00 to	10.00

San Francisco

No. 1 hvy. melting	$ 42.00 to	$ 44.00
No. 2 hvy. melting	34.00 to	36.00
No. 1 dealer bundles	29.00 to	31.00
No. 2 dealer bundles	13.00 to	15.00
Machine shop turn.	6.00 to	8.00
Cast iron borings	6.00 to	8.00
No. 1 cupola cast	85.00 to	87.00

Los Angeles

No. 1 hvy. melting	$ 41.00 to	$ 43.00
No. 2 hvy. melting	30.00 to	32.00
No. 1 dealer bundles	28.00 to	30.00
No. 2 dealer bundles	10.00 to	12.00
Machine shop turn.	6.00 to	8.00
Shoveling turnings	10.00 to	12.00
Cast iron borings	6.00 to	8.00
Elec. furnace, 1 ft. and under (foundry)	86.00 to	88.00
No. 1 cupola cast	88.00 to	90.00

Seattle

No. 1 hvy. melting	$ 59.00 to	$ 61.00
No. 2 hvy. melting	48.00 to	50.00
No. 2 bundles	38.00 to	40.00
No. 1 cupola cast	94.00 to	96.00
Mixed yard cast	81.00 to	83.00

Hamilton, Ont.

Brokers buying price per net ton on cars:

No. 1 heavy melting	$ 55.00
No. 2 heavy melting cut 2 ft. and under	52.00
No. 1 dealer bundles	60.00
No. 2 bundles	30.00
Mixed steel scrap	34.00
Bush. new fact. prep'd.	58.00
Bush. new fact. unprp'd.	50.00
Machine shop turn.	25.00
Short steel turn.	28.00
Mixed bor. and turn.	15.00
Cast scrap	48.00

Houston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 67.00 to	$ 68.00
No. 2 hvy. melting	51.00 to	53.00
No. 2 bundles	34.00 to	36.00
Machine shop turn.	19.00 to	20.00
Crushed turnings	35.00 to	37.00
Shredder scrap	67.00 to	68.00
Cut structural plate 2 ft. and under	84.00 to	86.00
Unstripped motor blocks	58.00 to	60.00
Cupola cast	71.00 to	73.00

STEEL PRICES

Codes identify Producers listed in the Key on page 75. (Prices quoted are mill base prices in cents per pound unless otherwise noted and do not reflect extras or surcharges.) N.A. = Not available.

Billets, Blooms, Slabs

(Dollars per net ton)

Carbon Rerolling, Midwest	
W5	$366.00
N4	$366.00
West	
C6	$346.00
Carbon Forging, East	
B3(3), C10, U1	$453.00
R3	$453.00
Midwest	
R3, U1, W5	$453.00
S1	$453.00
C10	$453.00
K2	$453.00
W5	$453.00
West	
B3(2)	$463.00
C6	$453.00
South	
A7	$453.00
Alloy, East	
R3, C10	$492.00
B3	$492.00
Midwest	
W8, W5, C10	$492.00
S1, U1	$492.00
R3	$492.00
West	
B3	$502.00
C6	$469.00
South	
A7	$492.00

Piling Sheet Steel

(cents per lb)

Midwest	
U1	26.45

Structurals

Carbon, East	
B3(2)	23.90
U1, J3	23.90
Midwest	
A7	24.15
C20	22.90
W8	22.90
I3, T10, U1, N4	23.90
West	
C6	25.10
U1	24.40
B3(2)	21.65
South	
C16, U1	23.90
T10	22.90
A8	Cmp*
High-Strength, Low Alloy, East	
B3(2)	23.90
U1, J3	23.90
Midwest	
N4	23.90
W8	24.15
U1	23.90
I3	23.90
West	
U1, A7	24.40
B3(2)	21.65
South	
U1, C16	23.90
Wide Flange, Carbon, East	
B3	23.90
U1, A7, J3	23.90
Midwest	
U1	23.90
N4	23.90
I3	23.90
West	
U1	24.40
C6	24.15
South	
A7	24.15

Strip

Hot-Rolled, Carbon, Cut ll Edge—all widths, East	
B3, U1	22.05
J3	22.05
Midwest	
A7, D1	22.05
I4	21.45
S1, J3, D1	22.05
W3	22.05
N4	22.55
W5	22.05
U1	22.05
B3, G2, I3, M2, R3, G3	22.05
West	
K1	20.80
B3	24.70
South	
R3	22.05
Cold-Rolled, Carbon Max. 25%, East	
E4	29.75
R7, S10, B4	29.60
P15	24.80
S7	Cmp*
U1	35.30
D1(1)	Cmp*
B4	31.55
Midwest	
G4	24.80
I4	35.30
W14	22.95
S1, J4	34.05
T4	Cmp*

*Composite pricing

West	
U1	33.25
High-Strength, Hot-Rolled, Low Alloy, Cut Edge & Mill Edge—all widths, (plus extras)†	
Midwest	
M2, G3, R3, W3, I4, J3, G2, I3	22.05
A7	22.05
S1	22.05
West	
K1	22.05
South	
R3	22.05
High-Strength, Cold-Rolled, Low Alloy, Mill Edge, East	
R7	29.00
Midwest	
S1	32.00
Alloy, Hot-Rolled, Midwest (plus extras)†	
S1	24.60
G4	25.80
I4	23.70
Alloy, Cold-Rolled, East	
C11, E4, M8	43.35
R7	32.75
B4	42.60
P15	32.10
Midwest	
I4	41.80
S1	42.30

Sheets

Hot-Rolled, Carbon (18 Ga & Hvyr), East	
B3	22.05
J3	22.05
U1	22.05
Midwest	
A7, U1, B3, G2, G3, I3, M2, R3, W3	22.05
S1, W5, D1	22.05
J3	22.05
I4	21.15
West	
U1	21.30
K1	22.05
South	
R3	22.05
Cold-Rolled, East, Class I	
B3(2), U1	26.15
J3	26.15
Midwest	
B3, I3, G3, R3, M2, U1(2)	26.15
G2, W3, M11	26.15
I4	22.00
J3, A7	26.15
S1, W5, D1	26.15
West	
U1	26.65
South	
R3	24.65
Galvanized (hot-dipped), East	
B3(2), U1	28.00
Midwest	
J3, D1	28.00
I3, W5, S1	28.00
U1, A7, R3, Y1	28.00
G2, W3, M11	28.00
West	
K1	27.15
U1	28.50
South	
U1	28.00
R3	28.00
Enameling, Midwest	
A7, I3, U1, J3	27.65
S1	26.50
Long-Terne, Midwest	
W5	28.30
A7, U1	29.35
R3	29.35

†Actual weight basis

Wire Rod

East	
B3(2)	22.35
U1	22.35
Midwest	
N4	22.35
U1, K2	22.35
West	
A7	22.00
C6	21.45
B3	23.25
South	
G7	22.35

Tinplate

Electrolytic Tinplate

	per base box
Single Reduced (70 lb)	
East	
B3, J3	$26.29
U1	26.29
Midwest	
B3	$26.29
U1	26.29
J3	26.29
M11	26.29
W3	26.29
W5	26.29
West	
K1	$26.79
U1	26.79
South	
U1	$26.29
Double Reduced (55 lb)**	
Midwest	
M11 (50 lb)	$21.49
B3, J3	21.49
U1	21.49
W3	21.49
W5	21.49
West	
K1	$21.99
U1	21.99
South	
U1	$21.49
Black Plate	
Single Reduced (75 lb)*	
East	
B3	$24.01
Midwest	
J3	$24.01
M11	24.01
I3, U1, W5	24.01
W3	24.01
West	
K1	$24.01
U1	23.36
Double Reduced (55 lb)	
East	
B3	$18.93
Midwest	
M11	$18.93
W5, U1	18.93
J3	18.93
W3	18.93
W5	18.93
West	
U1	$18.93
South	
U1	$18.93

*70 lb—base weight extra 45¢
**50 lb—base weight extra $1.40

Bars

Carbon Steel, Hot-Rolled
(Special quality)

East	
R3, K3	25.80
R5	25.80
B3(3), J3	25.80
U1, C10	25.80
Midwest	
A7	23.95
U1, I3, I4, C20, N4	25.80
R3, T10	25.80
K2	25.80
I3	19.50*
West	
B3	25.80
C6	24.45
B3	24.70
South	
A8	20.65
A7	25.80
C16	25.80
Cold-Finished Carbon, East	
A11	22.15
R3	33.75
C21	21.15
J3(4), L2	31.00
C2	23.025
M8, W10, T11, S8	31.00
N1	24.475
R4	22.25
B4	31.00
M1	23.025
B4, C10	31.00
Midwest	
B5, W10, Y1, W8, R3	33.25
J3	31.00
B1	19.80
L2	30.75
N9	31.00
P3	19.85 + CMS
W14	22.20
J3(3)	31.00
B5	31.25
J3	31.00
West	
B5	31.20
B5	34.90
R3	37.15
South	
B5	32.85
J3	34.00
C16	24.40
J3	31.95
Alloy, Hot-Rolled, East	
B3(2), R5, K3, C10, U1	27.95
R3	27.95
J3	27.95
Midwest	
A7, U1, R3	27.95
I3, C10	27.95
I4	24.85
I3	21.00*
West	
B3	27.95
B5	18.50
C6	26.60
B3	27.10
South	
A7	24.85
A8	22.00
Alloy, Cold Drawn, East	
L2	35.20
R3, N1, C2	37.90
M1	28.025
R4	25.65
A11	30.50
J3, W10, L2	34.85
T11, S8	34.85
C10	34.85
J3(2)	34.25
Midwest	
B5, R3, C10	37.35
C2	28.275
J3, M9, W10	34.85
P3	22.75
B1	22.70
N9	34.85
L2	34.65
B5	35.10
J3	36.00
J3	34.85
West	
R3	40.75
B5	35.20
B5	38.25
South	
J3	35.85
C16	28.00
B5	36.75

Plates

Carbon Steel, East	
B3(2), U1	25.75
L4	25.75
P2	25.75
J3	26.75
Midwest	
B3, R3, S1	25.75
I3	24.25
J3, A7	22.80
U1, I4	25.75
R3	26.75
West	
A7, B3, C6, O2	24.25
K1	23.50
U1	25.75
South	
R3	25.75
A7	25.75
U1	25.75
Alloy, East	
B3, J3	33.55
U1, L4	33.55
P2	33.55
J3	34.55
Midwest	
B3	33.55
G2, G3	33.55
I4, U1	33.55
West	
B3	33.55
O2	30.55
K1	31.30
South	
A7	27.55

Wire

Carbon Steel Wire, East	
B3(2)	27.10
U1	27.70
A11	22.15
Midwest	
U1	27.70
A7, R3	24.60
N4, W7	27.40
K2	24.20
South	
A8	22.85
West	
A7	25.95
C6	24.95

STEEL PRICES

Producer Key
With Principal Offices

A4 American Cladmetals Co., Carnegie, Pa.
A7 Armco Inc., Middletown, Ohio
A8 Atlantic Steel Co., Atlanta, Ga.
A11 Atlantic Wire Co., Branford, Conn.

B1 Baron Drawn Steel Corp., Toledo, Ohio
B3 Bethlehem Steel Corp., Bethlehem, Pa.
B4 Blair Strip Steel Co., New Castle, Pa.
B5 Bliss & Laughlin Steel Co., Harvey, Ill.

C1 Calstrip Corp., Los Angeles
C6 CF&I Steel Corp., Pueblo, Colo.
C10 Copperweld Steel Co., Warren, Ohio
C11 Crucible Divisions, Colt Industries, Pittsburgh, Pa.
C15 G. O. Carlson, Inc., Thorndale, Pa.
C16 Connors Steel Co., Birmingham, Ala.
C20 Calumet Steel Div., Chicago Heights, Ill.
C21 Cumberland Steel Co., Cumberland, Md.

D1 Detroit Strip Div., Cyclops Corp.
D2 Driver Wilbur B., Co., Newark, N. J.
D3 Driver Harris Co., Harrison, N. J.

E3 Enamel Products & Plating Co., McKeesport, Pa.
E4 Elliot Bros. Steel Co., New Castle, Pa.

F1 Firth Sterling, Inc., McKeesport, Pa.

G2 Granite City Steel Co., Granite City, Ill.
G3 Great Lakes Steel Division, National Steel Corp., Ecorse, Mich.
G4 Greer Steel Co., Dover, O.
G5 Green River Steel Corp., Owensboro, Ky.
G6 Gibraltar Steel Corp., Buffalo, N. Y.
G7 Georgetown Steel Corp., Georgetown, S. C.
G8 Guterl Special Steel Corp.

H1 Hercules Drawn Steel Corp., Livonia, Mich.

I2 Ingersoll Steel Div., New Castle, Ind.
I3 Inland Steel Co., Chicago, Ill.
I4 Interlake Steel Corp., Chicago

J2 Jessop Steel Corp., Washington, Pa.
J3 Jones & Laughlin Steel Corp., Pittsburgh
J4 Joslyn Mfg. & Supply Co., Chicago
J5 Judson Steel Corp., Emeryville, Calif.

K1 Kaiser Steel Corp., Fontana, Calif
K2 Keystone Consolidated Industries, Inc.
K3 Kentucky Electric Steel Co., Ashland, Kentucky
K5 Kemco Div., Foote Mineral Co., Keokuk, Iowa

L2 La Salle Steel Co., Chicago
L3 Lone Star Steel Co., Dallas
L4 Lukens Steel Co., Coatesville, Pa.
L5 Litho-Strip Corp., Chicago

M2 McLouth Steel Products Corp.
M4 Mid States Steel & Wire Co., Crawfordsville, Ind.
M8 Mill Strip Products Div., National Steel Service Center, National Steel Corp.
M9 Moltrup Steel Products Co., Beaver Falls, Pa.
M11 Midwest Steel Div., National Steel Corp., Portage, Ind.

N1 Northeast Precision Steel Co., Boston, Mass.
N4 Northwestern Steel & Wire Co., Sterling, Ill.
N6 Northwest Steel Rolling Mills, Seattle, Wash.
N9 Nelsen Steel & Wire Co., Chicago, Ill.
N10 North Star Steel Co., Saint Paul, Minnesota

O2 Oregon Steel Mills, Portland, Ore.

P2 Phoenix Steel Corp., Claymont, Del.
P3 Wyckoff Steel Div., Plymouth, Mich.
P9 Pacific States Steel Co., Niles, Cal
P13 Penn Dixie Steel Corp., Kokomo, Ind.
P14 Pacific Tube Co., Los Angeles
P15 Philadelphia Steel and Wire Corp., Phila.

R3 Republic Steel Corp., Cleveland
R4 Ramco Steel Co., Buffalo, N. Y.
R5 Roblin Steel Corp., Inc., North Tonawanda, N. Y.
R6 Rodney Metals, Inc., New Bedford, Mass.
R7 Rome Strip Steel Co., Rome, N. Y.

S1 Sharon Steel Corp., Sharon, Pa.
S7 Stanley Works, New Britain, Conn.
S8 Superior Drawn Steel Co., Monaca, Pa.
S10 Seneca Steel Service, Buffalo, N. Y.
S16 Southern Precision Steel Co., Gulfport, Miss.

T4 Thomas Steel Strip Co., Warren, O.
T5 Timken Company, Steel Division, Canton, O.
T7 Texas Steel Co., Fort Worth, Tex.
T9 Triumph Electro Corp., Chicago, Ill.
T10 Tennessee Forging Steel Corp., Harriman, Tenn.
T11 Teledyne Columbia-Summerill, Carnegie, Pa.

U1 United States Steel Corp., Pittsburgh, Pa.

W3 Weirton Steel Division, National Steel Corp., Weirton, West Va.
W5 Wheeling-Pittsburgh Steel Corp.
W7 Wilson Steel & Wire Co., Chicago
W10 Wyckoff Steel Div., Ampco-Pittsburgh Corp., Pittsburgh, Pa.
W14 Whittaker Steel Strip Div., Detroit, Mich.

Steel Service Center Prices

Price, Dollars per 100 lb

Cities* / City Delivery Charge*	Sheets			Strip	Plates	Shapes	Bars		Alloy Bars			
	Hot-Rolled (10 gage)	Cold-Rolled (20 gage)	Galvanized (16 gage)	Hot-Rolled Strip	Plates	Standard Structurals	Hot-Rolled (merchant)	Cold Finished	Hot-Rolled 8620 As Rolled	Hot-Rolled 4140 Annealed	Cold-Drawn 8620 As Rolled	Cold-Drawn 4140 Annealed
Atlanta	22.23	28.98	31.18	31.63	21.81	24.68	17.33	33.40	42.10	52.60	69.58	73.19
Baltimore	26.67	28.19	35.29	37.30	24.85	28.64	19.19	36.65	55.85	59.91	69.79	76.32
Birmingham	21.92	29.13	31.27	32.10	21.48	24.36	17.14	31.75	49.31	68.90	68.16	74.43
Boston	25.11	29.68	34.62	45.11	35.11	37.52	20.95	41.20	48.40	52.69	62.29	67.33
Buffalo	29.13	35.79	40.51	43.66	33.04	26.77	17.80	41.10	39.03	48.82	56.33	64.06
Chicago	23.30	32.19	34.60	33.75	23.87	26.21	15.94	32.66	37.01	42.32	50.07	56.70
Cincinnati	24.85	29.72	33.23	34.55	24.63	28.78	15.20	30.51	35.17	40.02	45.20	51.15
Cleveland	27.47	32.64	33.35	33.08	25.73	28.01	16.01	32.92	35.76	41.57	46.44	52.48
Denver	33.10	40.58	37.46	41.88	34.45	35.59	21.42	44.77	51.78	59.12	67.62	75.96
Detroit	25.06	31.96	32.35	36.92	27.28	34.81	19.47	38.44	35.65	39.68	56.96	51.26
Houston	33.42	31.40	34.58	41.97	32.24	38.36	17.35	39.48	39.28	45.22	53.75	60.10
Kansas City	25.26	31.98	34.70	30.64	27.34	28.84	17.57	34.14	40.72	51.71	57.20	64.82
Los Angeles	31.07	37.43	39.98	46.37	36.57	38.90	34.77	51.12	63.18	72.74	79.09	90.58
Memphis	28.23	36.53	36.43	36.92	27.28	34.81	19.47	38.44	52.82	56.96	67.85	77.44
Milwaukee	24.20	31.40	33.85	32.90	24.56	28.00	15.71	33.04	35.61	41.88	46.30	53.45
New York	24.20	30.17	33.20	43.39	29.93	33.54	19.69	42.13	46.59	53.04	62.17	69.31
Philadelphia	28.39	35.11	36.92	46.98	30.80	35.97	19.70	39.64	46.41	52.66	62.06	69.23
Pittsburgh	26.55	32.56	35.16	41.38	32.45	29.51	20.41	41.30	46.51	54.05	61.11	68.88
Portland	30.68	39.39	42.34	33.60	32.90	38.20	34.08	57.18	61.00	64.10	78.49	....
San Francisco	30.59	38.29	40.39	46.32	37.98	39.18	30.29	52.11	63.09	72.30	78.49	86.10
Seattle	30.86	37.25	29.01	47.46	31.08	35.32	31.89	51.68	64.02	70.14	73.83	87.67
Spokane	21.80	32.39	34.23	37.24	33.25	25.16	20.58	41.24	42.02	46.30	....	58.32
St. Louis	25.28	31.06	33.30	35.96	27.25	29.68	16.09	33.14	38.46	43.65	51.02	57.46
St. Paul	24.77	30.26	33.05	35.73	26.33	28.12	15.45	34.33	36.60	41.88	46.58	53.31

Base Quantities. All HR products may be combined for quantity. Hot-rolled sheet, 10 ga x 36 x 96—120; Cold-rolled sheet, 20 ga x 36 x 120; Galv. sheet—16 ga x 36—120; Hot-rolled strip—⅛" x 1"; Plate ¼" x 84; Shapes—I-Beams 6 x 12.5; Hot-rolled bar—Rounds ¾-2 15/16; Cold finished bar—C 1018—1" rounds; Alloy bar—Hot-rolled 8620—1⅜" round; Cold drawn—1" round; Hot-rolled 4140—1⅜" round; Cold drawn—1" round. Check local supplier for additions or deductions from base.

*Prices at all points include metropolitan delivery charges.

NOTE

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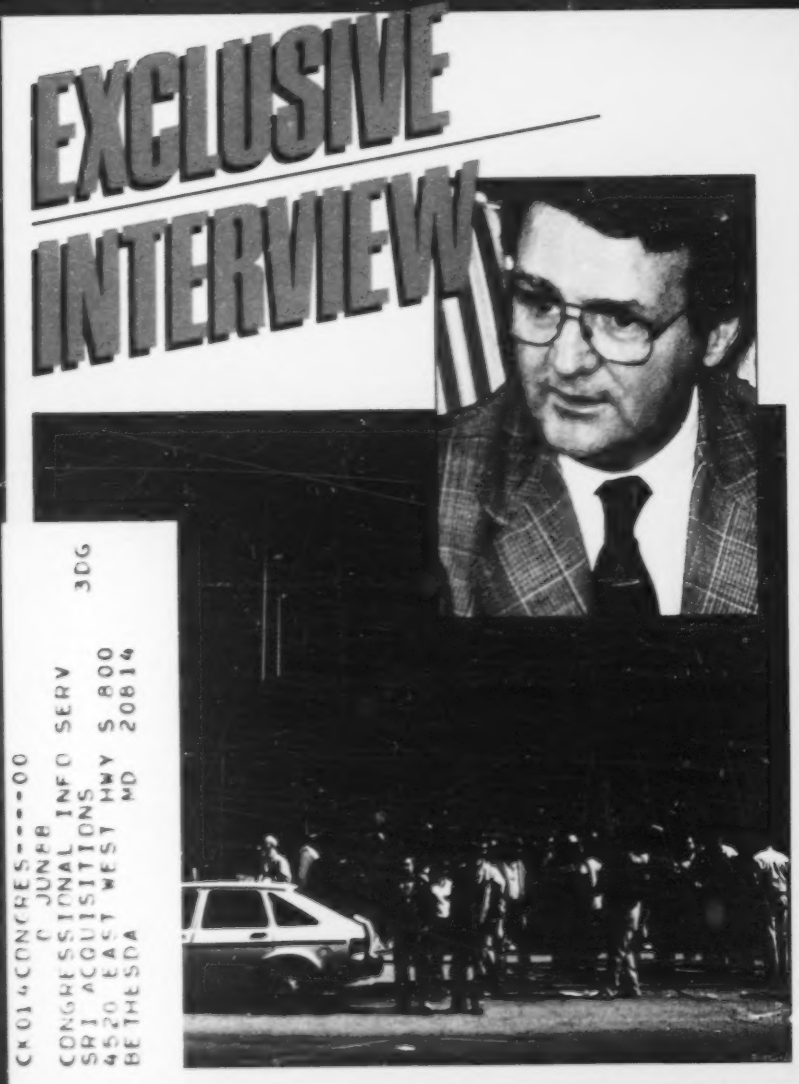
72-73.

Chilton's

JULY 22, 1983

IRON AGE

THE MAGAZINE FOR METALWORKING MANAGEMENT



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Secretary of Labor Raymond Donovan Talks About Jobs and the Jobless in America

Also: QUALITY IN AMERICA—PART I IN A SERIES: ARE WE TURNING IT ARQUND IN QUALITY?

A REPORT FROM EUROPE'S BIG MACHINE TOOL FAIR

MANUFACTURING SYSTEMS SERIES 42: HOW COMPUTERS ARE CHANGING THE WAY WE TRAIN WORKERS

VOL. 226, NO. 20

IRON AGE

JULY 22, 1983

COVER STORY

40 **IS AMERICA TURNING IT AROUND IN QUALITY?**
In this first article of a special five-part series on quality, the current quality scene in the U.S. is reviewed. It would appear that some top executives are beginning to wake up.

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27 **AMERICA'S LABOR CHIEF TALKS ABOUT JOBS & THE JOBLESS**
Secretary Raymond Donovan comments on the change in worker skills, displaced workers and responsibilities for retraining.

50 **MMS SERIES 42: COMPUTERS CHANGE WORKER TRAINING**
Training in the maintenance of complex manufacturing systems is causing headaches. Computer-based training may help.

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The EMO-5 machine tool exhibit in Paris made it clear European producers won't take a back seat to Japan or the U.S.

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Stumbling toward the year 2000

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The nation's specialty steelmakers have mixed feelings about President Reagan's mixture for controlling steel imports.

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Business bailouts aren't always bad, says a former Treasury official. The three biggest bailouts have had rich payoffs.

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It appears the recession for durable goods new orders ended in January. Orders have gone up now for three straight months.

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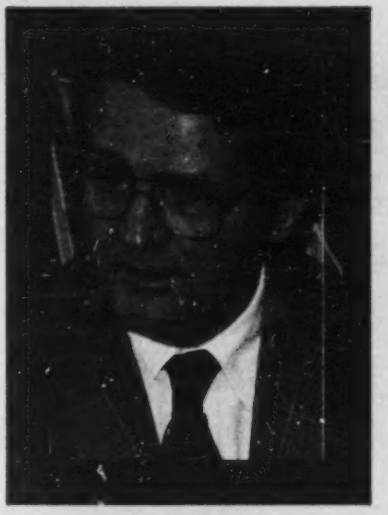
More companies, recognizing the experience and skills of older workers, are casting around for ways to keep them employed.

47 **TECHFRONT**
New and tougher demands are hyping the market for graphite-fiber-reinforced glass matrix composites.

64 **PRODUCTS NEWSFRONT**
Rank Precision's inspection machine provides integrated inspection routines that are easily learned by users.

69 **MATERIALS NEWSFRONT**
Steel demand continues at a steady pace which, considering the season, may be an indication of the long-awaited turnaround.

76 **BUSINESS FORECAST**
The nation's unemployed workers are still not an endangered species, but there were fewer workers without jobs in June.



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Quality in product design: Part II in a series; Developments in aerospace materials.

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Reagan draws mixed reviews on specialty steel decision

Half a loaf is better than none unless it's your half that's missing.

That might summarize reactions of domestic specialty steel producers to the import program of the Reagan Administration.

The Administration established four-year quotas for tool steels and for stainless rod and bar. These products accounted for half the specialty imports in 1982. For this half of the market, the Reagan program is expected to help.

For the half represented by stainless sheet, strip, and plate, the government is imposing tariffs that start at 8 and 10 pct and decline over four years.

Producers of flat rolled stainless don't think the tariffs will help. Quotas were sought and there is sharp criticism of the import program.

"We're obviously bitterly disappointed," said Richard P. Simmons, president of Allegheny Ludlum Steel Corp. "The President has done the minimum."

The only effect of the tariffs will be to increase the subsidies of foreign governments, Mr. Simmons predicted. "We expect foreign producers will absorb all the tariff," he added.

Carpenter Technology Corp. expects some immediate benefit from the quotas. "We think they should have a favorable impact on the bar, rod and tool steel markets," said Paul R. Roedel, president of Carpenter. "They should restrain the import levels."

Mr. Roedel is referring to aggregate levels of a product line that includes tool steels, but is particularly strong in stainless bars.

For Latrobe Steel Co., which specializes in tool steels, the quota is not seen having much immediate effect. "The relief will be moderate because the market is so weak," said Marshall Schober, president of Latrobe.

The tool steel quota of 22,400 tons is down sharply from the 40,000 tons imported in 1982. Because of the market weakness, however, imports in the first quarter were down to an annual rate of 30,000 tons.

The quota doesn't include band saw or chipper knife grades. That means the ceiling is really around 26,000 tons, which isn't too far below the first quarter level.

"We had asked for a share of the market rather than an absolute number," said Mr. Schober. When demand revives, he notes, domestic producers will benefit from having a fixed tonnage quota. In the current slump, the tonnage approach is hurting.

"I don't want to look a gift horse in the mouth," said Mr. Schober, "but I need help now."

The stainless flat rolled tariffs will be applied on top of dumping duties of 7.4 pct on stainless sheet from West Germany and 3.4 pct on stainless sheet from France. Dumping duties have also been applied to stainless strip from these countries.

British producers of stainless sheet and strip were exonerated in dumping proceedings. However, a countervailing duty of 19.3 pct has been placed on stainless plate from Britain.

Mr. Simmons said he will be closely monitoring stainless imports. Since it has been established that the old prices reflect dumping or subsidy, he said, a failure of the tariffs to bring price increases will have to mean an increase in the illegal margins.

"If they haven't raised their prices by the amount of the tariffs," he said, "we think we will have grounds for other cases."

If the tariffs are passed on in prices, imported stainless could still be selling below the domestic level. Mr. Simmons cited the June survey of the Steel Service Center Institute. This showed that 13 pct of the imported stainless was going for 20 pct or more below the domestic price and 47 pct was going for 10 to 20 pct below.

Mr. Roedel of Carpenter saw good and bad in the Administration's program. "I was pleased the President saw fit to take an action recognizing the problem of unfair trade in our industry," he said, but added, "The tariff approach on flat rolled is inadequate."

Like Mr. Simmons, he felt foreign producers will simply swallow the tariffs. "If you've got subsidies now, all you need is a little more subsidy and that takes care of it," he said.

Meanwhile the Reagan Administration decision to impose tariffs and quotas on imports of specialty steels is causing widespread anger overseas.

British Prime Minister Margaret Thatcher denounced the U.S. step as a "deplorable" reversal of the spirit of cooperation achieved at the recent Williamsburg, Va., summit meeting.

A spokesman for the European Economic Community (EEC) said the group is examining the U.S. move in light of provisions in the General Agreement on Tariffs and Trade (GATT). "If we are correct," the spokesman said, "European governments will be able to compensate their steelmakers' losses resulting from the U.S. decision."

West German Economics Minister Otto Lambsdorff said he supported the EEC's position and expressed "astonishment" at Mr. Reagan's action.

Mrs. Thatcher ordered her Minister of Trade and Industry Paul Channon to "raise the matter" with U.S. Special Trade Representative William Brock. Mr. Channon labeled the new restrictions "scapegoatism" and said the British consider them a blatant return to increased protectionism.

"There is no open trading process in this industry," Mr. Brock told European journalists in a trans-Atlantic press conference. He said the U.S. had to act to protect an industry that was being denied an opportunity to compete. "We had been put in a position of trying to compete in a world market in which subsidies abound, where government intervention is rampant," he said.

Mr. Brock believes the U.S. action is consistent with the GATT rules. "The whole structure of our approach was designed to give us an opportunity to say to other countries it is intolerable to continue the degree of government intervention that exists in the world. We have announced our willingness to engage in discussions with individual

Reagan's recipe for specialty steel imports

	1982 imports (000) tons	Pct of 1982 U.S. supply	Reagan 4-year program 1	2	3	4
			Tariff			
Stainless sheet & strip	87.3	13.5	10%	8%	6%	4%
Stainless plate	13.3	12.5	8%	6%	5%	4%
			Tons			
Stainless bar	40.0	29.4	27,000	27,800	28,600	29,500
Stainless rod	21.9	50.0	19,100	19,700	20,300	20,900
Tool steel	40.1	49.0	23,400	23,100	23,800	24,500

Source: AISI—U.S. Trade Representative

countries or trading units on marketing arrangements."

The Europeans contend that any problems experienced by U.S. manufacturers are "not due to steel imports" but to the "overall economic situation."

Industry group seeks changes in trade laws

Widespread revamping of America's trade laws is being sought by a broad-based industrial coalition newly formed in Washington.

Called the Trade Reform Action Coalition (TRAC), the group includes companies in the steel and steel products, valves, forgings, and nonferrous metals industries as well as textiles, apparel, leather products, numerous consumer goods and industrial equipment manufacturers.

TRAC has presented to members of Congress "a comprehensive package of trade reform proposals," according to its chairman, Jim Conner.

"The trade laws," he says, "need to be less complex, less expensive, less arbitrary, yet more certain as to their outcome, more expeditious, more fair and more effective for all petitioners." Those seven concepts, Mr. Conner adds, "sum up our proposals to the Congress."

The group claims its proposals would shorten the length of time it takes for industries to gain relief in antidumping and countervailing duty cases and reduce administrative discretion in those proceedings to make them less arbitrary and more fair.

Major changes would be aimed at Sections 301 and 201 of the U.S. Trade Act. For examples, TRAC wants Section 301 modified so the U.S. government could take action against foreign governments that engage in "industrial targeting."

"This idea," Mr. Conner explains, "depoliticizes Section 301 proceedings by placing such investigations and decisions in an administrative agency and subjecting them to judicial review."

The injury causation test under Section 201 would be reduced under the TRAC plan "so it is no more severe" than the standard required under the General Agreement on Tariffs and Trade (GATT).

The coalition stresses that it is not seeking "protectionism." "Quite the reverse," Mr. Conner says. "These proposals and others being recommended by a wide range of American industries represent a realistic effort to provide fundamental reforms in order to restore more equitable competitive conditions in the U.S. market."

TRAC also does not believe its plans would reverse U.S. trade policies but would, instead, aim at adequate administration and constructive modifications of existing trade remedy laws. There is a vital need, according to the coalition, for simplified procedures to reduce costs and data requirements for petitioners.

Among TRAC's members are the Metalworking Fair Trade Coalition made up of 27 trade associations employing 1.4 million persons and generating sales of $75 billion; the Steel Service Center Institute, which represents about 500 North American metal distributors; and the American Iron and Steel Institute.

Steel execs differ on merger rule changes

"We oppose any weakening of our present antitrust laws," said Dennis J. Carney, chairman of Wheeling-Pittsburgh Steel Corp.

Testifying before the Senate Judiciary Committee earlier this month, Mr. Carney argued that the solution to the steel industry's problems did not lie in easing the restrictions on mergers and joint ventures.

"Rigorous enforcement of our antitrust laws is essential to protect customers from adverse effects of greater concentration of economic power in our industry," he said.

'We disagree with the AISI proposals to relax antitrust laws and their enforcement.'

Dennis J. Carney, chairman, Wheeling-Pittsburgh Steel Corp.

Strongly in favor of steel combinations is David M. Roderick, chairman of United States Steel Corp. and also chairman of the American Iron & Steel Institute (AISI). Earlier this year, AISI came out with a position paper that called for government policies designed to permit steel mergers.

"Specifically, we disagree with the AISI proposals to relax antitrust laws and their enforcement," said Mr. Carney. He cited the effects of past steel mergers.

"I submit that these mergers have made little or no contribution to the solution of the basic problems confronting us," he added.

The Senate committee was given a limited endorsement of flexible merger policies by Donald H. Trautlein, chairman of Bethlehem Steel Corp. "We believe that every transaction should stand on its own merits and be evaluated in accordance with our present laws and procedures," said Mr. Trautlein.

He called for an American steel policy. This would take in trade and capital matters as well as antitrust laws.

Mr. Carney also called for broad treatment of steel problems. He said government financial assistance was needed to modernize the domestic steel industry.

"An effective program should channel low-interest loans and loan guarantees into modernization projects prudently selected," he said.

Bendix regroups Automation Group

Bendix will now emphasize new technology, engineering and assembly and de-emphasize machining, according to a restructuring plan.

The plan, developed during the recession in the machine tool industry and aimed at dealing with increased foreign competition, will enable Bendix Automation to compete globally and respond quickly to the changing technological needs of its customers, says Frederick W. Searby, Bendix Automation president and group vice-president, Allied Corp.

The new plan follows reorganization of the group earlier this year into three sectors: production systems, production equipment and components.

It includes the sale of Cutting Tools Division operations in Greenfield, Mass., Los Angeles, Calif. and South Beloit, Ill.; Tool Holders Division operations in Chicago; Midwest Machine & Tool, Cleveland; and Sterling Castings, Wellington, Ohio.

There will also be some consolidation of manufacturing operations. The Solon Road facility of the Turning Machine Division in Cleveland will be closed and its operations integrated into a second Cleveland facility.

The Burbank, Calif., facility of Automation and Measurement Division will also be closed.

There will also be some acceleration

METALWORKING ORDER TRENDS

Orders strength mirrors economy's strength

Orders received by durable goods producers continued on their modest but steady roll in May.

May orders totaled $84.5 billion, and were up 1.3 pct over April.

The May increase marked the third straight monthly gain for durables new orders. It now looks like the recovery for durables orders—as well as for the overall economy—may have begun in January. Over the first five months this year, orders have risen in four of those months.

Further confirmation of an in-place recovery is noted in the table here. May orders for the six major metalworking industry groups—primary metals, nonelectrical and electrical machinery, transportation equipment, fabricated metal products and instruments—were up a solid 11 pct from a year ago. May orders totaled $71.2 billion. A year ago, orders volume came to $64.1 billion.

A glance along the product lines on the table shows 'plusses' dominating the latest monthly comparisons. Moreover, 'plusses' occurred in every major industry group.

The transportation equipment industry was the only one showing a decrease in orders volume in May. But this wasn't as bad as it might look.

U.S. Commerce Department analysts note, "While orders for transportation equipment declined $1.7 billion, or 8.6 pct, to $18.5 billion, the decrease was attributable to a decline in defense orders. Excluding the defense component, orders for transportation equipment increased."

Defense-related product lines are the most volatile over any short-run time span. This remains true based on the most recent data. However, over the longer run, defense business is now shaping up as a real 'plus' in the rebounding economy.

New orders for defense-related capital goods, for example, were down in May by 34 pct to $4.7 billion. Notes the Commerce Department, "Although this series is quite unstable on a month-to-month basis, new orders (defense) have shown a steady upward trend since the beginning of 1980."

For business in general, the great fear is that of a recovery advancing too quickly and strongly. That is why eyes are on Congress. It is in a tax-raising mood as it now faces not only the huge budget deficit, but a business recovery threatening to roar ahead at inflation-inducing speed.

Source: U.S. Dept. of Commerce Billions of dollars, seasonally adjusted monthly total, unless otherwise noted		Latest Month or Qtr.	Previous Month or Qtr.	Same Period Year Ago
Capital Expenditures (Annual Rates)				
U.S. Industry, Total	2nd Qtr.	$302.2*	$293.0	$323.2
Manufacturing, Total	2nd Qtr.	111.0*	109.9	123.8
Manufacturing, Durable Goods	2nd Qtr.	49.6*	50.7	59.0
Mining Industry	2nd Qtr.	13.7*	12.0	16.6
Key Indicators, Durable Goods Manufacturing				
New Orders	May	84.5	83.4	76.4
Shipments	May	83.0	80.5	79.7
Inventories	May	170.7	169.8	183.4
Unfilled Orders	May	300.8	299.3	301.2
New Orders, Metalworking				
Capital Goods Producers, Nondefense Industries	May	22.1	22.6	20.3
Capital Goods Producers, Defense Industries	May	4.7	7.1	4.8
Primary Metals, Total	May	10.0	9.0	8.5
Steel (SIC 331)	May	4.2	3.5	3.9
Iron & Steel Castings (SIC 332)	May	1.3	1.0	0.9
Nonferrous Metals	May	4.7	4.5	3.7
Nonelectrical Mach.-Equip. Industries, Total	May	15.1	14.8	14.4
Engines & Turbines	May	1.1	0.9	1.3
Farm Machinery & Equipment (Shipments)	May	1.0	0.9	1.1
Construction, Mining & Materials Hdlg. Equip.	May	2.6	2.1	2.3
General Industrial Machinery	May	1.0	1.1	1.3
Fluid Power Equipment** (Index-1972=100)	May	218	210	181
Metalworking Machinery	May	0.7	0.6	0.6
Machine Tools, Total (Millions $, unadjusted)***	May	135.5	118.6	106.0
Machine Tools, Metal-Cutting***	May	93.8	79.3	68.0
Machine Tools, Metal-Forming***	May	41.7	39.3	38.0
Electrical Mach. & Equip. Industries, Total	May	13.6	13.2	11.9
Elec. Transmission Equip. & Industrial Apparatus	May	1.5	1.8	1.7
Household Appliances	May	1.3	1.2	1.1
Communication Equipment	May	4.3	4.4	3.4
Transportation Equip. Industrial, Total	May	18.5	20.2	16.0
Motor Vehicles & Parts (Shipments)	May	12.3	11.3	10.1
Aircraft, Missiles & Parts	May	4.2	7.2	4.9
Shipbuilding & Military Tanks	May	1.1	0.8	0.7
Fabricated Metal Products, Total	May	10.0	9.4	9.4
Instruments, Total	May	4.0	4.1	3.9

*Est.—Commerce Dept.; **Source: National Fluid Power Assn.; ***Source: NMTBA.

MATERIALS NEWSFRONT

Steel summary: Orders are on a low plateau

Demand for steel is steady at a low level.

Daily orders have been constant for the past month or so. Mill officials say shipments in the third quarter will about match those of the second quarter.

Considering the seasonal influences, say mill officials, it could be said the stability of demand actually represents an upturn. That may be true, but the failure of the market to move up from its low plateau is another major disappointment.

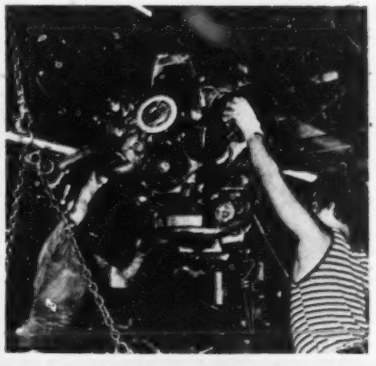
In predicting level third quarter shipments, moreover, steel executives are counting on a fairly good September. Shipments will be down in July and no big upturn has been indicated yet for August.

The hope is that shipments will rise to as high as 7 million tons in September. That would compare with an average of less than 6 million tons in recent months.

About the only positive sign is an upward trend in advanced bookings for sheet products. Cold rolled sheet is ordered further ahead than most grades, and officials think the sheet trend could carry through to products ordered later.

Apart from that, any optimism must be based on external facts. Sales of domestic autos in June were at an annual rate of more than 7 million. That was the highest total in nearly two years.

The final report of the U.S. Commerce Department showed that new orders for manufactured goods rose $3.2 billion or 1.9 pct in May. Orders for durable goods were up $1.1 billion or 1.3 pct.



Steelmakers are still looking for more orders from Detroit.

Despite growing evidence of a recovery, steel users seem to be moving very deliberately.

Auto production schedules call for fewer cars to be built in the third quarter than the second.

Of vital importance to steel companies is the continued slide in capital spending. Orders for non-defense capital goods declined $0.5 billion or 2 pct in May. About two-thirds of the steel produced goes into capital projects.

For domestic steel companies, another negative development was the rise in steel imports to 1.35 million tons in May. That was up from 1.18 million tons in April.

Of particular concern was the continued rise in steel imports from developing nations. According to the American Iron & Steel Institute, these nations have become the largest source of imported steel.

J&L, Republic sue rails over iron ore traffic

Two major steel companies' antitrust suits against eight railroads is being evaluated by U.S. District Courts in New York and Washington, D.C.

The companies—Jones & Laughlin and Republic—allege a conspiracy by the railroads to restrict competition in iron ore traffic unloaded from vessels at Lake Erie ports.

Charged in the J&L suit in Washington are the following companies: Penn Central Corp.; Chesapeake & Ohio Railway; Baltimore & Ohio Railroad; CSX Corp.; Norfolk & Western Railway; Norfolk Southern Corp.; Bessemer & Lake Erie Railroad; and Conrail. In New York, Republic has filed against only the first four in the J & L complaint.

Penn Central is the predecessor to Conrail, while CSX and Norfolk Southern are the parent corporations for the C & O and B & O, and N & W respectively.

The complaints claim the railroads fixed prices for dock handling, dock storage and land transportation services.

Republic charges the railroads refused to publish a dock handling rate for self-unloaders; denied commodity line-haul rates to private commercial docks; refused to permit trucks to carry iron ore from railroad docks or made it economically unattractive to do so; delayed the use of trucks for carrying iron ore from commercial docks; refused to grant volume rates for handling or transporting iron ore; fixed line-haul rates for transporting iron ore; agreed not to lower line-haul rates for iron ore in response to competition from trucks; and prevented companies not under their control from acquiring terminal facilities that could be used to accommodate self-unloaders that would permit access by trucks.

The companies point out the railroads owned equipment tailored to unloading iron ore at the docks from bulk carriers and loading it into railroad cars for further movement to the steel mills. Republic says the railroads recognized that the development of self-unloaders for transporting iron ore over the lakes would significantly reduce the value of their investment in land-based unloading equipment, cause them to lose revenues for unloading at their docks to other commercial docks that could use the self-unloading technology to provide an alternative to the railroad docks, and ultimately pave the way for trucks to pick up iron ore at the docks and carry the freight to the steel mills.

The complainants point out the railroads began to face stiff competition when iron ore was pelletized and thus able to be unloaded from the more efficient self-unloading vessels at ports on the Great Lakes.

Japan steel to U.S. to drop sharply in '83

The Japan Steel Information Center (JSIC) is predicting exports from the Asian nation to the U.S. to be at a 20-year low for 1983. Over the first five months of this year, U.S. steel imports from Japan came to 1.5 million tons, a 42 pct drop from the same period last year.

Japanese Steel Mill Exports To The U.S.

	1982	1983	Pct Change
Jan	283,000	229,000	−19.1
Feb	359,000	216,000	−39.7
Mar	558,000	385,000	−31.1
Apr	373,000	259,000	−29.6
May	370,000	293,000	−20.7

Source: Japan Steel Information Ctr.

Only about three pct of Japan's total output has found its way to U.S. shores thus far, according to the Center. The JSIC asserts China will this year become Japan's leading customer for steel, receiving about six million tons.

Nevertheless, the Center says, American customers have increased inquiries for Japanese steel, especially for flat-rolled products. Since early 1982 exports to the U.S. have been declining, it says. Japanese steelmakers predict monthly shipping levels will go above the 300,000 tons-a-month average of recent months, but still below the half million tons-a-month average of two years ago.

The Commerce Department puts Japanese steel exports to the U.S. in 1982 at 5.2 million tons, the lowest in 15 years and 16 pct less than in 1981.

(Cont. on p. 70)

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MATERIALS NEWSFRONT

Price & Production Data

Steel production by districts, thousands of tons (000 omitted)

	Last Week	Two Weeks Ago	Month Ago	Year Ago
North East Coast	156	182	210	126
Buffalo	32	30	30	22
Pittsburgh	179	175	190	130
Youngstown	81	96	94	68
Cleveland	137	134	121	109
Detroit	137	134	129	132
Chicago	474	454	463	313
Cincinnati	96	95	95	78
St. Louis	69	72	67	27
Southern	135	135	86	116
Western	85	85	86	72
U.S. Production	1,581	1,592	1,621	1,193

Source: American Iron & Steel Institute

Lake Superior Ore Prices

51.50% Fe Natural delivered lower Lake ports. Rail transportation, handling and unloading may be charged to the account of the buyer. Coarse ore 80¢ premium.

Pellets (per iron unit natural)..... gross-ton 80.50-86.9*
Old range, non-bessemer ..... gross-ton $32.78
Mesabi, regular-unscreened ..... gross-ton $32.53
Mesabi, non-bessemer.....gross-ton $32.25-32.53**

*80.50¢—Pickands Mather as of 1/27/81.
**86.9¢—U. S. Steel as of 3/15/82, Cleveland-Cliffs as of 2/26/82, Oglebay Norton as of 3/25/82, and Hanna Mining as of 2/26/82.

Steel Production, Composite Prices

(Effective July 11, 1983)

U.S. Steel Production	Last Week	Two Weeks Ago	To Date 1983	To Date 1982
Net tons, in thousands	1,581	1,592	42,032	42,770
Capability Utilization Rate	54.9	55.3	53.5	53.4

Composite Prices	This Week	Week Ago	Month Ago	Year Ago
Finished Steel Base* (¢/lb.—eff. 2/14/83)	26.217	26.217	26.217	25.297
Pig Iron* * (Net ton=2000 lbs.)	$213.00	$213.00	$213.00	$213.00
Scrap No. 1 hvy.* * * (Gross ton=2240 lbs.)	$ 71.50	$ 71.50	$ 70.83	$ 56.17
No. 2 bundles	$ 45.83	$ 46.17	$ 46.50	$ 41.83

Scrap Comparison (Gross Ton)

No. 1 steel, Pittsburgh .	$ 74.50	$ 74.50	$ 72.50	$ 59.50
No. 1 steel, Philadelphia	68.50	68.50	68.50	59.50
No. 1 steel, Chicago.....	71.50	71.50	71.50	49.50
No. 1 bundles, Detroit..	71.50	71.50	71.50	52.50
Low Phos., Youngstown	77.50	75.50	75.50	63.50
No. 1 mach'y cast., Pgh	74.50	74.50	74.50	76.50
No. 1 mach'y cast., Phila	98.50	98.50	98.50	100.50
No. 1 mach'y cast., Chi..	108.50	108.50	108.50	101.50

*Finished Steel Composite
Weighted index of steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.
* *Pig Iron Composite
Based on average prices for basic and foundry pig iron at representative producing points within the U.S.
* * *Steel Scrap Composite
Average of No. 1 hvy. melting steel scrap and No. 2 bundles delivered to consumers at Pittsburgh, Philadelphia and Chicago.

Nonferrous Prices

(Effective July 11, 1983)
Prices obtained in trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated.

Primary Metal Prices

(cents per lb.)	current price	last price	date of change
Aluminum	76.00 (Nom.)	76.00-80.00	1/4/82
Copper (C)	80.00	78.00-80.00	7/8/83
Lead	20.00-23.00	19.00-23.00	6/23/83
Magnesium Ingot	138.00	134.00-138.00	6/1/83
Nickel	329.00	350.00	11/25/81
Titanium Sponge	555.00-585.00	555.00	4/29/82
Zinc	40.00	38.00-40.00	4/27/83

ALUMINUM: 99.5%. COPPER (C) = cathode. LEAD: common grade. MAGNESIUM: 99.8% pig. Velasco, Tex. NICKEL: electro., Port Colborne, Canada. ZINC: high grade.

Antimony, American Laredo, Texas . $2.00
Beryllium-aluminum 5% Be, per lb. contained Be $215.00
Beryllium-copper, per lb. cont. Be $130.00
Beryllium 97% powder 200 ..... $166.00
Bismuth, ton lots ..... $1.65-$1.75
Cadmium, under one ton ..... $1.05-$1.15
Calcium, ton lots, crown $3.05
Chromium, 99.8% $3.75
Cobalt, 99%, cathode $12.50
Gold per troy oz. $430.50
Indium, dollars per troy oz. $3.50
Iridium, dollars per troy oz. $600
Magnesium sticks, 10,000 lbs. $1.91
Mercury, per 76-lb. f.o.b. N.Y. ..$280-$290
Molybdenum, lb. tech. moly oxides, 20 lb. MO can $5.85
Nickel oxide sinter at U.S. points of entry $3.12
Palladium, per troy oz. $140
Platinum, per troy oz. $475
Rhodium, per troy oz. $600.00
Silver ingots, per troy oz. $11.99
Vanadium $4.94
Zirconium sponge..... $12.00-$17.00
(Per lb. unless otherwise noted)

Straits Tin Price

(U.S. cents per lb, EX-SMELTER, based on daily market in Penang in Malaysian dollars per kilo.)

July 4—Holiday
July 5—598.57
July 6—601.63
July 7—602.18
July 8—602.80

Scrap Prices

Brass Mill Scrap

(Cents per lb; over 20,000 lbs. add 1¢ per lb)

	Solids	Turning
Copper	77⅛	68¼
Yellow brass	64½	61⅛
Red brass	70⅝	65⅛
Comm. bronze	72¾	67
Mang. bronze.....	64⅛	61¼
Free cutting rod ends.....	59	58

Custom Smelters Scrap

(Cents per lb., carload lots, del. refinery)

No. 1 copper wire.....	70
No. 2 copper wire.....	62
Light copper.....	53

Ingot Makers Scrap

(Cents per lb., carload lots, del. refinery)

No. 1 copper wire.....	66
No. 2 copper wire.....	58
Light copper.....	49
No. 1 composition	56
No. 1 comp. turnings.....	54
Hvy. yellow brass solids	36
Hvy. yellow brass turnings.....	28
Radiators.....	47

Aluminum

New mixed clips	42	—43
Old sheet.....	39	—40
Old cast.....	39	—40
Clean dry borings	40	—41

Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Aluminum

Segregated clippings.....	33	—34
Mixed L.C. clips.....	28	—29
Old sheets and cast	25	—26
Borings and turnings.....	17	—18
Duraluminum clippings.....	28	—29

Copper and Brass

No. 1 copper wire.....	61	—62
No. 2 copper wire.....	54	—55
Light copper.....	48	—49
Radiators.....	38	—39
No. 1 composition	49	—50
No. 1 composition turn'gs.....	45	—46
Cocks and faucets.....	34	—35
Clean heavy yellow brass	32	—33
Brass Pipe	33	—34
New soft brass clippings.....	48	—49

Lead

Heavy soft lead.....	9	—10
Whole batteries.....	3	— 4
Type metal	15	—16
Electrotype.....	13	—14

Nickel

Nickel solids.....	110	—120
Nickel rod ends.....	110	—120
Nickel sheets, clips.....	110	—120
Nickel turnings.....	50	— 60

Zinc

New zinc clippings.....	15	—16
Old diecast zinc	9	—10

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MATERIALS NEWSFRONT

(Effective July 11, 1983) Prices obtained in trade based on representative tonnages per gross ton delivered to consumer unless otherwise stated. Prices are the opinions of *Iron Age* editors and correspondents, based on contacts with dealers, brokers, generators and users in the industry on the effective date listed above.

Ferrous Scrap Prices

Pittsburgh

No. 1 hvy. melting	$ 74.00 to	$ 75.00
No. 2 hvy. melting	64.00 to	65.00
No. 1 dealer bundles	90.00 to	91.00
No. 1 factory bundles (auto)	87.00 to	88.00
No. 2 bundles	51.00 to	52.00
No. 1 busheling	87.00 to	88.00
Machine shop turn.	7.00 to	8.00
Shoveling turnings	26.00 to	27.00
Cast iron borings	25.00 to	26.00
Low phos. punchings plate	88.00 to	89.00
Heavy turnings	54.00 to	65.00
No. 1 RR hvy. melting	88.00 to	89.00
Rails 2 ft. and under	103.00 to	104.00
Scrap rails, random lgth.	86.00 to	87.00
RR specialties	95.00 to	96.00
No. 1 machinery cast	74.00 to	75.00
Cupola cast	67.00 to	68.00
Heavy breakable cast	30.00 to	31.00
Stainless		
18-8 bundles and solids	600.00 to	610.00
18-8 turnings	500.00 to	510.00

Chicago

No. 1 hvy. melting	$ 71.00 to	$ 72.00
No. 2 hvy. melting	66.00 to	67.00
No. 1 dealer bundles	86.00 to	87.00
No. 1 factory bundles (auto)	87.00 to	88.00
No. 2 dealer bundles	44.00 to	45.00
No. 1 busheling	86.00 to	87.00
Shredder scrap	84.00 to	85.00
Machine shop turn.	17.00 to	18.00
Mixed bor. and turn.	18.00 to	19.00
Shoveling turnings	24.00 to	25.00
Cast iron borings	40.00 to	41.00
Low phos. forge crop	89.00 to	90.00
Low phos. punchings plate ¼ in. and heavier	98.00 to	99.00
Low phos. 2 ft. and under	95.00 to	96.00
No. 1 RR hvy. melting	82.00 to	83.00
Scrap rails, random lgth.	83.00 to	84.00
Reroller rails	92.00 to	93.00
Rails, 2 ft. and under	94.00 to	95.00
RR couplers and knuckles	82.00 to	83.00
RR car axles	114.00 to	115.00
No. 1 machinery cast	108.00 to	109.00
Cupola cast	95.00 to	96.00
Stove plate	90.00 to	91.00
Steel car wheels	85.00 to	86.00
Stainless		
18-8 bundles and solids	560.00 to	570.00
18-8 turnings	460.00 to	470.00
430 bundles and solids	135.00 to	140.00
430 turnings	100.00 to	105.00

Philadelphia

No. 1 hvy. melting	$ 67.00 to	$ 70.00
No. 2 hvy. melting	54.00 to	57.00
No. 1 dealer bundles	79.00 to	82.00
No. 2 dealer bundles	40.00 to	43.00
No. 1 busheling	79.00 to	82.00
Shredder scrap	81.00 to	84.00
Machine shop turn.	23.00 to	26.00
Mixed bor. and turn.	23.00 to	26.00
Shoveling turnings	40.00 to	43.00
Low phos. 5 ft. and under	79.00 to	82.00
Low phos. 2 ft. punchings	90.00 to	93.00
Electric furnace bundles	93.00 to	96.00
RR specialties	81.00 to	84.00
Rails, 2 ft. and under	92.00 to	95.00
Cupola cast	58.00 to	61.00
Heavy breakable cast	53.00 to	56.00
No. 1 machinery cast	97.00 to	100.00

Detroit

Broker buying prices per gross ton on cars:

No. 1 hvy. melting	$ 53.00 to	$ 54.00
No. 2 hvy. melting	51.00 to	52.00
No. 1 dealer bundles	71.00 to	72.00
No. 2 bundles	36.00 to	37.00
No. 1 busheling	69.00 to	70.00
Drop forge flashings	45.00 to	46.00
Machine shop turn.	25.00 to	26.00
Mixed borings and turn.	15.00 to	16.00
Shoveling turnings	25.00 to	26.00
Cast iron borings	15.00 to	16.00
Heavy breakable cast	34.00 to	35.00
Mixed cupola cast	50.00 to	51.00
Automobile cast	73.00 to	74.00
Stainless		
18-8 bundles and solids	470.00 to	480.00
18-8 turnings	350.00 to	360.00
430 bundles and solids	115.00 to	125.00

Youngstown

No. 1 hvy. melting	$ 67.00 to	$ 70.00
No. 2 hvy. melting	36.00 to	39.00
No. 1 dealer bundles	80.00 to	83.00
No. 2 dealer bundles	37.00 to	40.00
Machine shop turn.	1.00 to	3.00
Shovaling turnings	5.00 to	8.00
Low phos. plate	76.00 to	79.00
Electric furnace bundles	71.00 to	74.00
Galvanized bundles	61.00 to	64.00

Cleveland

No. 1 hvy. melting	$ 60.00 to	$ 63.00
No. 2 hvy. melting	27.00 to	30.00
No. 1 dealer bundles	79.00 to	82.00
No. 1 factory bundles	82.00 to	85.00
No. 2 bundles	22.00 to	25.00
No. 1 busheling	79.00 to	82.00
Machine shop turn.	1.00 to	4.00
Mixed bor. and turn.	1.00 to	4.00
Shoveling turnings	3.00 to	6.00
Cast iron borings	6.00 to	9.00
Cut structural & plates, 2 ft. and under	97.00 to	100.00
Low phos. punchings plate	97.00 to	100.00
Drop forge flashings	37.00 to	40.00
Foundry steel, 2 ft. & under	57.00 to	60.00
No. 1 RR hvy melting	77.00 to	80.00
Rails, 2 ft. and under	102.00 to	105.00
Rails, 18 in. and under	103.00 to	106.00
Steel axle turnings	67.00 to	70.00
Railroad cast	80.00 to	83.00
No. 1 machinery cast	87.00 to	90.00
Cupola cast	80.00 to	83.00
Stove plate	45.00 to	48.00
Stainless		
18-8 bundles	325.00 to	335.00
18-8 turnings	275.00 to	285.00
430 bundles	80.00 to	85.00

Buffalo

No. 1 hvy. melting	$ 33.00 to	$ 34.00
No. 2 hvy. melting	23.00 to	24.00
No. 1 busheling	38.00 to	39.00
No. 1 dealer bundles	36.00 to	38.00
No. 2 bundles	20.00 to	21.00
Machine shop turn.	9.00 to	10.00
Mixed bor. and turn.	16.00 to	17.00
Shoveling turnings	17.00 to	18.00
Cast iron borings	15.00 to	16.00
Low phos. plate	56.00 to	57.00
Structural and plate, 2 ft. and under	54.00 to	55.00
Rails, 2 ft. and under	50.00 to	51.00
Scrap rails, random lgth.	30.00 to	31.00
No. 1 machinery cast	71.00 to	72.00
No. 1 cupola cast	48.00 to	49.00

St. Louis

No. 1 hvy. melting	$ 69.00 to	$ 70.00
No. 2 hvy. melting	52.00 to	53.00
Foundry steel, 2 ft.	52.00 to	53.00
No. 1 dealer bundles	69.00 to	70.00
No. 2 bundles	49.00 to	50.00
Machine shop turn.	12.00 to	13.00
Shoveling turnings	18.00 to	19.00
Cast iron borings	30.00 to	31.00
No. 1 RR hvy. melting	69.00 to	70.00
Rails, random length	69.00 to	70.00
Rails, 18 in. and under	84.00 to	85.00
RR specialties	80.00 to	81.00
Cupola cast	70.00 to	71.00
Heavy breakable cast	48.00 to	49.00
Stove plate	75.00 to	76.00
Cast iron car wheels	49.00 to	50.00
Rerolling rails	92.00 to	93.00
Unstripped motor blocks	55.00 to	56.00

Birmingham

No. 1 heavy melting	$ 67.00 to	$ 68.00
No. 2 heavy melting	61.00 to	62.00
No. 1 dealer bundles	67.00 to	68.00
No. 2 bundles	45.00 to	46.00
No. 1 busheling	67.00 to	68.00
Shredder scrap	81.00 to	82.00
Machine shop. turn.	24.00 to	25.00
Shoveling turnings	32.00 to	33.00
Cast iron borings	32.00 to	33.00
Electric furnace bundles	64.00 to	65.00
Elec. furnace, 3 ft. & under	61.00 to	62.00
Structural and plate, 2 ft.	86.00 to	88.00
Structural and plate, 4 ft.	81.00 to	82.00
No. 1 RR hvy. melting	67.00 to	68.00
Scrap rails, random lgth.	68.00 to	69.00
Rails, 18 in. and under	85.00 to	86.00
Angles and splice bars	82.00 to	83.00
No. 1 cupola cast	84.00 to	85.00
Unstripped motor blocks	59.00 to	60.00

Cincinnati

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 55.00 to	$ 56.00
No. 2 hvy. melting	52.00 to	53.00
No. 1 dealer bundles	62.00 to	63.00
No. 2 bundles	29.00 to	30.00
Machine shop turn.	7.00 to	8.00
Shoveling turnings	10.00 to	11.00
Cast iron borings	14.00 to	15.00
Low phos. 18 in. and under	80.00 to	81.00
Rails, random length	65.00 to	66.00
Rails, 2 ft. and under	82.00 to	83.00
No. 1 cupola cast	60.00 to	61.00
Heavy breakable cast	30.00 to	31.00
Drop broken cast	74.00 to	75.00

New York

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 34.00 to	$ 35.00
No. 2 hvy. melting	30.00 to	32.00
No. 2 dealer bundles	22.00 to	23.00
Mixed bor. and turn.	7.00 to	8.00
Machine shop turn.	4.00 to	5.00
Shoveling turnings	10.00 to	12.00
Clean cast. chem. borings	34.00 to	35.00
No. 1 machinery cast	89.00 to	90.00
Mixed yard cast	38.00 to	39.00
Heavy breakable cast	14.00 to	15.00
Stainless		
18-8 prepared solids	490.00 to	510.00
18-8 turnings	390.00 to	410.00
430 prepared solids	70.00 to	80.00
410 solids	60.00 to	70.00

Boston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 38.00 to	$ 40.00
No. 2 hvy. melting	28.00 to	30.00
No. 1 dealer bundles	44.00 to	46.00
No. 2 bundles	29.00 to	31.00
No. 1 busheling	44.00 to	46.00
Shredder scrap	43.00 to	45.00
Machine shop turn.	3.00 to	5.00
Shoveling turnings	7.00 to	9.00
No. 1 machinery cast	100.00 to	105.00
Mixed cupola cast	28.00 to	30.00
Heavy breakable cast	8.00 to	10.00

San Francisco

No. 1 hvy. melting	$ 42.00 to	$ 44.00
No. 2 hvy. melting	34.00 to	36.00
No. 1 dealer bundles	29.00 to	31.00
No. 2 dealer bundles	13.00 to	15.00
Machine shop turn.	6.00 to	8.00
Cast iron borings	6.00 to	8.00
No. 1 cupola cast	85.00 to	87.00

Los Angeles

No. 1 hvy. melting	$ 41.00 to	$ 43.00
No. 2 hvy. melting	30.00 to	32.00
No. 1 dealer bundles	28.00 to	30.00
No. 2 dealer bundles	10.00 to	12.00
Machine shop turn.	6.00 to	8.00
Shoveling turnings	10.00 to	12.00
Cast iron borings	6.00 to	8.00
Elec. furnace, 1 ft. and under (foundry)	86.00 to	88.00
No. 1 cupola cast	88.00 to	90.00

Seattle

No. 1 hvy. melting	$ 59.00 to	$ 61.00
No. 2 hvy. melting	48.00 to	50.00
No. 2 bundles	38.00 to	40.00
No. 1 cupola cast	94.00 to	96.00
Mixed yard cast	81.00 to	83.00

Hamilton, Ont.

Brokers buying price per net ton on cars:

No. 1 heavy melting	$ 55.00
No. 2 heavy melting cut 2 ft. and under	52.00
No. 1 dealer bundles	60.00
No. 2 bundles	30.00
Mixed steel scrap	34.00
Bush. new fact. prep'd.	58.00
Bush. new fact. unprp'd.	50.00
Machine shop turn.	25.00
Short steel turn.	28.00
Mixed bor. and turn.	15.00
Cast scrap	48.00

Houston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$ 84.00 to	$ 86.00
No. 2 hvy. melting	48.00 to	50.00
No. 2 bundles	31.00 to	32.00
Machine shop turn.	18.00 to	19.00
Crushed turnings	34.00 to	38.00
Shredder scrap	84.00 to	86.00
Cut structural plate 2 ft. and under	82.00 to	85.00
Unstripped motor blocks	56.00 to	58.00
Cupola cast	71.00 to	73.00